

# *Amateur Radio*

**VOL. 50, No. 9 SEPTEMBER 1982**

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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



**This months features include**

- ★ **DXERS PARADISE**
- ★ **REVIEW OF FT-ONE**
- ★ **EXOTIC MODULATIONS**
- ★ **LICENSING IN PACIFIC ISLANDS**

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# amateur radio

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## COVER PHOTO



RAAF P3 Orion pictured over the antennae on Willis Island. Whilst on this reconnaissance flight, the crew dropped newspapers and fresh fruit to the islanders.

Photo: Courtesy Dave VK3DHF



# WIA NEWS

## FEES

The following is the text of a letter dated 23rd July received from the Minister for Communications as relevant to WIA NEWS in August AR:—

"Thank you for your letter of 5 July 1982 concerning radio-communication licence fees. I have noted your concern and would like to assure you that the Government in introducing the Radiocommunications Licence Fees Act 1982 and the Radiocommunications (Miscellaneous Provisions) Act 1982 acted as a matter of urgency to protect the radiocommunications licence fee structure from legal challenge.

It is not the Government's intention to recover more than the costs of radio frequency management from licensees. In achieving this aim the Government will ensure that costs are shared equitably among all classes of licensees with each class bearing its share of the costs of efficient radio frequency management.

The Government has agreed to some concessions for television stations only on a phase-in basis as their fees rose very substantially this year on implementation of the user pays principle. The costs of these concessions will not be charged to other users such as WIA members.

I am glad to know that the WIA generally accepts the user pays principle and understand fully your aversion to amateur operators subsidising commercial users. I can assure you that this has not happened in the past and the Government has no intention that it should happen in the future.

I also appreciate your views regarding amateur examinations and fees. My Department has examined the matter following your discussion with Mr. Ramsay and has advised me that all the WIA points can be met, namely:—

- adequate notice will be given of increased examination fees and the new basis for charging these fees;
- examination pass credits will be retained for two years; and
- licensed amateur candidates for higher sections will retain examination credits (includes Morse code credits) previously attained.

Further, the Department will not make a separate charge for the Amateur Operator's Certificate of Proficiency after the examination requirement has been met.

I appreciate the efforts of your organisation in representing the interests of amateur radio operators and wish to assure you of the Government's continuing high regard for the WIA and the amateur fraternity."

At a joint WIA/DOC meeting on 28th July the Institute representatives pointed out in unequivocal terms that the WIA generally does NOT accept the principle of the "user pays". It was also clarified with DOC, at that meeting, that if an unlicensed person obtains a licence during the validity of a pass in, say, Morse sending at a higher speed, he would continue to retain that credit indefinitely.

## THIRD PARTY — USA

To mark the successful conclusion to the third party arrangement with the USA the following messages were conveyed by amateur radio between the Federal President of the WIA and the President of ARRL:—

SENT —

"Vic Clark W4KFC  
President ARRL  
225 Main Street  
Newington CT 06111, USA.

I am very pleased to be able to make use of the recently established third party agreement between our two countries to convey my greetings to you and the

members of the ARRL. Stop.

Hoping for a continued close association between our two Societies. Stop.

Peter Wolfenden VK3AU  
President WIA."

RECEIVED —

"Peter Wolfenden VK3AU  
President Wireless Institute of Australia

ARRL sends greetings and congratulations on the successful conclusion of negotiation of the third party agreement between our two countries. We expect this will enhance the traditionally strong ties between the radio amateurs of Australia and North America.

73.  
Vic Clarke W4KFC  
President ARRL."

The messages were exchanged between VK3ADW and W1AW.

The conditions relating to the third party arrangement with the USA included in WIA NEWS of August 1982 AR, page 4, have been confirmed in writing by DOC (letter RB4/4/6 of 14/7/1982).

## INTRUDER WATCH

Bill Martin VK2EBM, 33 Somerville Road, Hornsby Heights, NSW 2077, is our new Federal Intruder Watch Co-ordinator in place of Bob McKernan VK4ALG, who has had to stand down for pressure of business reasons.

## EXECUTIVE OFFICE

Resulting from the retirement of Peter Dodd VK3CIF, the new Executive Office Manager and WIA Secretary is Mr. R. J. Macey.

## 1982-83 CALLBOOK

The New Call book should be ready for distribution about the end of this month. All details for inclusion in this Call Book closed off on 28th July. This promises to be our best and most informative Call Book produced in Australia. The price will be \$4.20 (PLUS postage to interstate of \$1.00), subject to any last minute unexpected changes.

## RTTY BAND SEGMENTS

August AR, page 5, refers: The Executive decided that no support can be given at this time to designating gentlemen's agreements for this mode on the grounds that HF band segments for special modes would create undue problems to other users of the HF bands. Single frequencies are set out in the Call Book for various special modes on HF but in practice, operators on a mode, will spread out either side of the spot frequency depending on the number of stations operative to reduce QRM amongst themselves.

## JOINT WIA/DOC MEETING

Several questions were discussed on 28th July. Among them were call signs for visitors. Suggestions included (a) a separate call sign suffix series such as VKK -- and (b) home call/VKX (e.g. W1DV/VK2). The designations of emissions (AR September 1981, page 26) for amateurs was another item. It was put forward that the inclusion of bandwidths in respect of amateur emissions was unnecessarily clumsy — those were maxima and in several overseas countries were omitted anyway. A further item discussed related to Government preparations in Australia for WCY 83. Additionally this was ITU Resolution 640 and the work required of administrations — outlined in WIA NEWS August AR — and the perceived need for additional third party arrangements with neighbouring countries. The Australian Tables of Frequency Allocations had still not been published.

## AWARD

Congratulations go to Dick Giddings VK3DG, of Lancefield, upon being honoured with the Order of Australia in the honours list. ■





# QSP



## Communications

It is becoming a slightly hackneyed phrase that "We call ourselves communicators but we do not communicate very well". We may not like the jibe but perhaps there is some truth in it. I think that there is probably a bit of "crocodile" in each of us.

In the last five years, the number of members in the Institute has more than doubled and the internal communication methods that were adequate then are, perhaps, no longer valid. What should be done? Perhaps an insight into one Division's methods can assist.

The Queensland Division has approached the problem by supplementing its news callback sessions with two weekly on-air nets conducted by Council members. These nets provide excellent opportunities for members and Council alike to exchange views. In addition, the Division conducts an annual Radio Club Workshop where members, through their club delegates, guide policy at a Divisional level as well as assisting in the briefing of the Federal Convention delegates. These activities reflect a Divisional strategy of communicating with members through their clubs; the success of which can be gauged by counting the number of active VK4WI club stations. The next stage for development concerns the establishment of better communications with members unable to join clubs for one reason or another.

Well, next year is World Communications Year and perhaps time to make further progress. Let us take the opportunity to examine communications between the Institute and its members and see if we can help our "crocodiles" to grow bigger ears.

DAVID LAURIE VK4DT  
VK4 Federal Councillor



# QSP

### "A TALE OF TVI"

A friend of mine (who shall remain nameless) told me a story recently which I think deserves to be shared with those of you who have had TVI problems.

My friend was relaxing in his shack, and having a merry time on his radio, when a knock came on the door and there appeared a neighbour from several doors away who complained that his TV set was suffering interference.

My friend, who is obliging and diplomatic to a fault, of course offered to go and inspect the said TV set and try and find a solution to the problem.

Complainant and complainee set off down the road, duly arriving at the house of the complainant, where he was ushered indoors to view the offending TV set. Politeness and courtesy was rampant on both sides. Tea and cakes were produced, and both examined the recalcitrant receiver. Antenna was found to be apparently satisfactory and a high-pass filter was in evidence at the set.

"Should be OK," my friend said, "Let's have a look at it."

Set was switched on, and both settled down to examine the problem in detail.

Beautiful picture, fine audio. Some time went by and suddenly the TV receiver went beserk.

Complainant jumped to his feet, triumphantly exclaiming and pointing to my friend, "There you are, see what you're doing?"

Bill Martin VK2EBM.

PS: If you heard VK2VWZ on the air, ask him about it!

### 50-54 MHz in ZL

The President of the NZART wrote to the Chairman of the Broadcasting Corporation of New Zealand late last year asking when NZ TV would follow other countries and vacate VHF Band 1 TV and move to UHF and when are TV Channel 1 and 2 TV transmitters due to be replaced because amateurs using the segment 51-53 MHz suffer interference from the suppressed (vestigial) lower sideband of the transmission. The text of the reply received, as printed in Break-In, January/February 1982, read:—

"Thank you for your letters of 10 May and 18 September. I apologise for the long delay in replying. The engineers responsible for our VHF planning have been very busy this year extending TV2 coverage and also at the FM enquiry.

To answer your question — firstly, we have no plans to vacate VHF Band 1. The circumstances which may have given rise to this move in some overseas countries do not apply in New Zealand, and in any case, have usually come about as a result of a change in the basic Television Standard (line structure, channel width, etc.).

Band 1 channels have enabled excellent coverage to be achieved in New Zealand, especially to country areas, and it is extremely doubtful that these results could be duplicated on UHF without incurring very high and unnecessary costs.

The correct usage of the UHF band for television transmission in New Zealand will be for additional programme services in more heavily populated areas.

The replacement of existing transmitters is a matter of BCNZ internal priorities and will take into account operating and maintenance costs, availability of spares and other demands on Corporation finances. All transmitters comply with Post Office Regulations for out of band radiation (although it is acknowledged that low quality receivers working in close

proximity to high power stations may suffer from overloading)."

The band 51 to 53 MHz has been granted to NZ Grade III operators from 1/1/1982 and 50-50.15 MHz is not available except under special conditions.

### THE TATE FAMILY

An oldie, from several sources  
Ever hear of the Tate family? I was introduced to them recently. There is the head of the family, "DIC" Tate, who wants to run everything. Uncle "RO" Tate tries to change everything around, and his sister, "AGI" Tate, likes stirring everything up whenever she can. Nephew "IRRI" Tate always rubs people the wrong way, and nieces "HESI" Tate and "VEGE" Tate like to pour cold water on every proposal. Then there is Auntie "IMI" Tate, who is all for trying something new just because she has seen someone else doing it. And, of course, last but not least, cousin "DEVAS" Tate can always be counted on to throw a wrench into the works.

You are sure to know the Tates because one of them sits on every committee, lives on every street, joins every club, works in every office, every factory and every shop. They are usually counted upon to turn up at every public function. Watch out for them and beware as you may wind up becoming a member of their family circle.

(WIA members are no exception — VK3UV, Ed)

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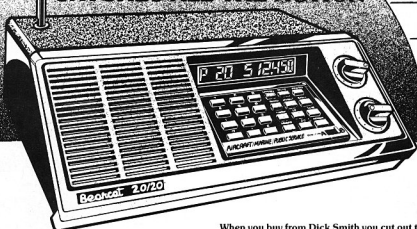
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Willis Island is an Australian Possession situated in the Coral Sea with co-ordinates, latitude 16° 17' 16" and longitude of 149° 57' 50". Initially established in 1921 as a coastal radio station, operated by AWA, it is now a Commonwealth Meteorological Bureau Weather Station and its observations are used in the preparation of routine forecasts. These reports also have an important role in the tropical cyclone warning system. Australian amateurs, during a tour of duty on the island, have given many a new DXCC country.



FROM THE AIR

OR



RIISING MAJESTICALLY FROM THE SEA

## Willis Island is A DXers' Paradise

Ken McLachlan VK3AH  
Box 39, Mooroolbark 3138

### EARLY HISTORY

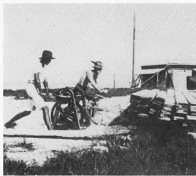
Credit for the establishment of the island goes to Captain John King Davis, who earlier gained fame as commander of the "Aurora" during the Australasian Antarctic Expedition from 1911-1914. (Australia's Antarctic Station at Davis commemorates his name.)

Captain Davis saw the value of establishing a station that would be able to forecast and relay valuable meteorological data back to the mainland. Objections were raised by his superiors as to the dangers that would be encountered by the party, however he dispelled these fears by volunteering to lead the first party himself. He engaged a working party of fourteen, which included two radio operators, and organised 150 tons of provisions, equipment, building materials and chartered a vessel for transport.

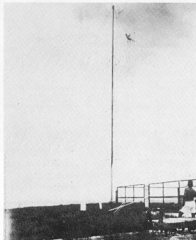


Repairing the tramway in the early days

This party set foot on Willis on October 14th, 1921, and settled into a rugged period ahead. Firstly they built a tramway from the beach to the site of the buildings for the ease of transport of materials and equipment. The priority order was habitable living quarters, a wireless hut, the erection



Winching up timber from the beach



Painting the guy wires

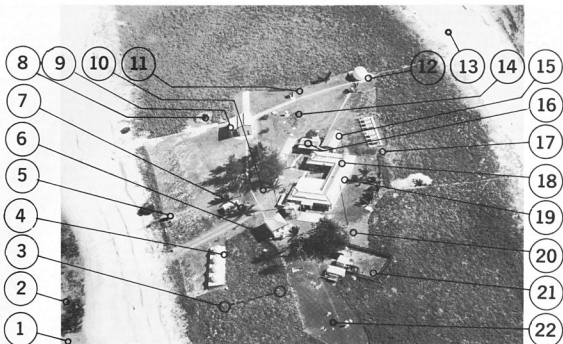
of two 26 metre high radio masts and the installation of the radio and meteorological equipment. This was accomplished in just three weeks and the island was claimed for the Australian Commonwealth by a flag raising ceremony on November 7th. Next day, at 9 a.m., Captain Davis radioed the first meteorological observation from the island.

During the 1920s the station was manned by a Bureau observer and two operators during the cyclone season, and by two operators only during the north-east trade wind season, with wireless operators from Amalgamated Wireless (Australasia) Ltd. (AWA). In the 1930s, from June 1931, it was staffed by only two AWA personnel, but the Bureau returned to the scene with the outbreak of World War Two. After the war the Overseas Telecommunications Commission assumed responsibility for radio communications and in 1966 the Bureau took over sole control, which it holds to this day.

### THE ISLAND

Willis Island has an area of some fifteen acres and is approximately 520 metres long by 130 metres wide, and 9 metres above sea level at low tide. It is a coral reef with no natural soil, but some has been deposited there for growing vegetation. This has not been fully successful, and it could not be termed a gardener's paradise. At low tide the rock pools are exposed, showing the colourful coral and an abundance of picturesque fish that inhabit them.

Entertainment on the island is limited, but has been updated through the years. A television set is installed but conditions vary and there is no guarantee that you will see the end of the "Who dunnit" movie.



An aerial photo guide to island showing (1) LARK access to the island, (2) Coral Sea, (3) Navigation Markers, (4) Freshwater tanks, (5) Fire and saltwater supply pumphouse, (6) Storage shed, (7) Concrete Bunker, (8) Rubbish burning pit, (9) Hydrogen generation and Balloon Shed, (10) BBQ area (for entertaining??), (11) Theodolite, (12) WF2 Tracking Radar, (13) Beach (coarse and sharp coral sand), (14) and (22) Stevenson's screens (contain temperature measuring equipment), (15) Generator Room and Amateur antennas, (16) Workshop, (17) Diesel storage tanks, (18) Meteorological office and Transmitters. (19) Sleeping Quarters, (20) Aerial mast with TV antennae, (21) Chook pen and run.

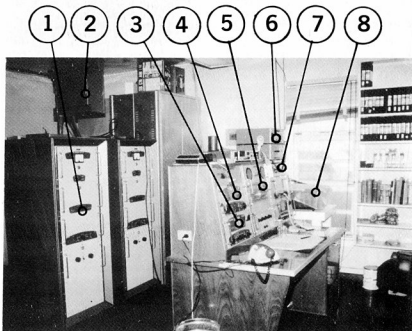
In latter years the 16 mm projector has been superseded by a video cassette player for playing feature length movies from the library, a hi-fi is available for music tapes, a table tennis and billiard table are provided. There is also a well stocked library for the avid reader. The only form of communication is by radio and, of course, amateur radio when an amateur is there for a tour of duty.

The island is attractive, having established coconut palms which provide welcome shade and plenty of coconut milk for those that like it, also a hit on the head if you are not wary during periods of high winds or when they are ripe. They also provide a tropical setting for the buildings, which are surrounded by grass areas which were kept neat and trim by hand mowers pushed by the duty crew for "exercise" prior to the provision of a VICTA motor mower! Concrete paths lead to the balloon launching area, radar deck and the beach.

Since the late 1940s, the buildings have received two major "re-builds", first in 1950 and then in 1968, coinciding with the installation of radar equipment at the station. The present amenities room, which contributes so much to the station's excellent conditions, was added in 1979.

#### COMMERCIAL EQUIPMENT

Prior to 1966, the Overseas Telecommunication Commission (OTC) used AWA transmitters and receivers. Power output of



A view of the transmitter room showing (1) Main Transmitter Rack, (2) Aerial Switching Box, (3) SSB Receivers, (4) Station Control Unit, (5) Shortwave Receiver, (6) Emergency 100 watt Transmitter, (7) Selective Call Unit, (8) Video Cassette Recorder.

these transmitters was 100 watts and 500 watts using frequencies of 6.990 and 9.040 MHz, with an additional frequency of 500 kHz. In 1966, when the Bureau of Meteorology took over control of the Island, the old equipment was replaced with two RACAL RA87 receivers and two RACAL TA63 500 watt SSB transmitters. Two "lattice" type masts supported dipoles for 3.315, 5.827 and 9.072 MHz orientated for contacts with Townsville, the nearest bureau station, and a frequency in the 6 MHz marine band was used as a liaison with the OTC.

In 1968 3 cm WF2 wind-finding radar equipment was installed. Two 24 metre high marine aluminium masts using stainless steel rigging were erected to replace the existing towers and new dipoles with balloons were installed. Additional equipment in the update included a control console and a 100 watt AWA SS210 back-up transceiver.

The dipoles were replaced in 1973. During the crew change-over in December 1980, a landing craft accidentally caught the guy wires of one of the antenna masts causing it to "bite the coral". Early the next year saw that same mast re-rigged and reinforced as, on examination, it was found to be badly corroded at the base due to climatic conditions over the years.

Another change in 1981 was the introduction of an HF sloping multi-band 5-30 MHz triangular antenna orientated for communication with Brisbane. The apex of the triangle is at 24 metres, each leg being 86.1 metres and sloping down to 3 metre masts. Sixty-six metres is the base measurement on which is centred a load termination. This antenna has an expected power gain of 6 dB at 8 MHz and 10 dB at 20 MHz, with a typical SWR, as claimed by the manufacturer, to be less than 2:1.

Further updating of this important meteorological outpost consisted of replacing one set of the RACAL units with a CODAN 7010/7021 500 watt transmitter and several CODAN 7004 HF single channel receivers complemented by a CODAN 7702 control unit. The back-up transceiver was replaced with a CODAN 6801, which can run 100 watts PEP on SSB. Another antenna, a half Delta (AEA 4104) with a nominal frequency range of 2-16 MHz, was

installed broadside to Townsville. Helical whips for each frequency have been installed and connected to the remaining RACAL equipment.

Powering the necessities on this remote coral outcrop is cared for by three 32 kVA 4 cylinder Deutz diesel alternators. One being on line at all times for provision of power for domestic and electronic equipment. Each alternator is rotated for service and regular maintenance. Fuel supplies are replenished at the time of change-overs.

The meteorological observers do work rostered shifts to allow the station to be operational round the clock. Each member of the group take turns with the household duties which include the cooking and the inevitable "washing up" chores. Provisions are kept in four freezers and a well stocked coolroom that in the early stages of a "Tour of Duty" also contains an adequate supply of liquid refreshment.



Crew changes are effected by Lighthouse vessel. The "Cape Pillar" was used in 1981.

A tour of duty is generally in the vicinity of six months duration. Crew changes and the replenishment of supplies are carried out by the Lighthouse vessel allocated to that area. One person, Captain Harold Chesterman, as Captain of firstly the "Cape Leeuwin" and later the "Cape Moreton", made more than 50 trips to exchange crews between 1947 and his retirement in 1978.

Once there and after change-over formalities and fresh supplies are taken ashore by a LARK which is an amphibian vessel attached to the supply vessel, the crew are on their own for the six month period. However, an aerial drop of essentials such as spares, mail and other necessities is usually carried out at the mid point of the tour by the courtesy of the RAAF, a service which has been provided by them for the past 28 years. Some humorous stories can be told about when a drop does not go according to plan, like when the wind carries some of the parachuted "storpedoes" off the destined landing point into the sea and retrieval by devious means is the order of the day, to reclaim maybe the mail and recent newspapers or at one time some metal "807s" sent by a friend to replenish the dwindling stocks.

Temperatures on this idealic island generally range from 20 to 30 degrees C with the highest recorded temperature since 1939 being 34.8 degrees C in mid-December 1959, and the lowest, a reading of 17.2 degrees C, in mid-July 1965. Research showed that the lowest daily maximum ever recorded on the island occurred on the previous day to the record of the

lowest temperature. The typical relative humidity varies between 60 and 80 per cent.

It is no wonder that Brian McGurgan is now on his ninth duty trip, this time as OIC of the Island Weather Station, and his tour of duty will end in December this year. Another amateur, Bruce Aubrey VK4AU, the Bureau's Regional Maintenance Officer in Queensland, has made in excess of thirty trips to the island in the last twenty years, and Bruce is credited with being largely responsible for the improvements that have taken place.

#### AMATEURS ON WILLIS

One early amateur on the island was John VK4JQ, who operated both Phone and CW in late 1963. Mid-1964 saw VK4WV active on CW, and the DX column in November 1967 AMATEUR RADIO notes that "Willis Is.: John VK4HG having a few minor troubles. On the last air drop his 10 and 15m gear went into the drink beyond the reef. So look for John now only on 20 SSB 0900 and 2000Z."

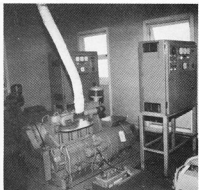
One amateur, Gavin, then VK4EV, now VK3HY, did some time on the island in 1968 and enjoyed having some 1,500 contacts whilst using a "Home-Brew" Phasing Type Transmitter with an output of fifty watts PEP to a ground plane on 20 metres, a half wave dipole on 80 metres, and 6 metres was not forgotten by using a two element beam and a "Home-Brew" Receiver. On his return home Gavin received cards direct and via the Bureau for nearly ten years.

Gavin's period of duty missed out on the cyclone season, but a previous crew in early 1957 were lashed by cyclonic winds that the anemometer recorded as 108 knots, followed on the next day by 104 knots. This is the highest wind speed ever recorded in Eastern Australia. Concrete bunkers have been built for such occurrences and they are equipped with basic necessities.



Amateur antennas after a "minor blow"

Another station that had an enjoyable time on Willis was Kevin VK9ZC, now VK4AKC. Kevin's tour was in 1973 and, with a new licence, an FT101, the essentials to make a quad and plenty of enthusiasm, Kevin soon made friends worldwide. It was also a big opportunity to use radio as a means of talking back home for the rest of the group. Amateur radio was an instant hit and became a hobby for them all, so much so that when the RD contest time came along Kevin was relieved of all his rostered duties for the twenty-four hour period, with the proviso that he stayed on the microphone. Kevin



Generator Room



# WILLIS ISLAND

# VK4JQ

RADIO VK3YL

CONFIRMING 2-WAY CW QSO of 21st DEC 1983

at 1415 GMT on 14 mcs.  
RST 579 73's W4HYG for JOHN

endured and stayed on the microphone (who wouldn't with all that housework to be done), was waited on hand and foot with nourishment and encouragement, and won the VK9 segment of the contest.

Kevin, being interested in VHF, decided that the very spasmodic TV reception from Townsville could be improved by constructing a "VK9ZC Special", which was a 6 element yagi with mast head amplifier. Results were disappointing, so attention was paid to Channel 9, Cairns, with the construction of an 11 element yagi. Results were promising but at least another 10 dB of signal was needed to make consistent viewing possible.

Back to the drawing board, or rather the erecting of antennas with exotic designs being tried and enthusiastic assistance in erection and testing coming from all. Long wires, Vees and others were tried, however a stocked Rhombic with a 200 foot long axis won the day and allowed TV viewing with watchable signals about five nights per week and provided much entertainment to the lonely four.



Kevin VK9ZC in the Willis Island shack

Kevin had in excess of 2,400 DX contacts during his stay, although there was much heavy going as, within hours of coming on the air, the whole world wanted to work him for a new country and, as he worked only transceive, it could take any-

thing up to 15 minutes to acknowledge one call. QSLs were handled promptly by transferring log data from day to day with his manager.



Dave VK9ZD "relaxing" between QSOs

One Bureau and Radio Technical Officer, who has travelled extensively to many of the Bureau's remote areas for periods of duty, spent an enjoyable stay on the island. Dave VK9ZD, now VK3DHF, went straight to Willis Island, five weeks after arriving home from twelve months duty at Macquarie Island. (From one extreme in temperatures to the other.) Apart from working DX on all bands and notching up some 3,000 QSOs, photography was another hobby that helped pass the time, and many off duty hours were spent exploring the rock pools exposed at low tide and photographing an abundance of marine life which lives in the tropical waters. One restriction imposed on the inhabitants of Willis is that of swimming in the open sea because of shark infestation.

Another fascination of the crew that spent the time on Willis during Dave's trip was the collection of shells from the shoreline. To get the best specimens it was important to be on the scene bright and early, when the tide was out, and it is believed that Dave has an extensive shell collection.

There is plenty of wildlife on Willis apart from the tropical fish there are thousand upon thousand of birds (sometimes a problem on washday). There are varying species from the flightless Landrail to the majestic Frigate bird, which has a wing span of up to two metres. Not to be forgotten are numerous turtles, especially in the breeding season. Dave and Mike, one of the weather observers, found some turtle eggs and successfully hatched them in the generator room. Eventually the sad day came to release them to their natural habitat, with one so reluctant to go that it had to be carried out into the sea.

Dave has applied for another call, VK0HI. He has been chosen for the trip to Heard by the organisers of the Heard Island DX and Mountaineering Expedition, which is



The bird life play havoc with the clothes on washing day.

## BUREAU STATIONS

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- ★ Casey
- ★ Macquarie I
- ★ Davis

June 82

scheduled for departure in early 1983 for his technical knowledge, operating ability and experience of the rigours that can be endured in Antarctic regions.

Following Dave was Mike VK9ZG, now VK6AMM, who in less than five months had 6,000 entries in the log, these being mainly on 15 and 20 metres, though some 300 were made on 6 metres. Mike's equipment consisted of a TS 120S and a 3 element Triband TH3 Jnr.

Tony VK9ZH has excelled himself with the number of QSOs during his stay. Tony volunteered that he had notched up in excess of 10,000 contacts so far and he still has a short time to go. All his log book information has been transferred to his QSL Manager, Gill VK6YL, who is going to have to smile kindly at the friendly post-man because it will be coming in by the bag full.

The observers on Willis Island weather station live a busy life, even though their workload is spaced via shifts. Every three hours there are such things to be done as noting cloud conditions, temperature and humidity, wind speed and direction, visibility and rainfall. Every six hours a balloon flight is set and subsequently tracked by radar and the observations plotted. In addition a Radiosonde flight is done every day, usually in the morning.

It has been virtually an impossibility to list all the amateurs that have visited and operated from Willis. Post-1970 calls in the

VK9 allocation have been VK9ZB, ZC, ZD, ZG (two operators used this call sign), ZH, and now the present operator is Andy VK9ZA, the Station's Radio Technical Officer. It is hoped that many more VK9Z's will be issued in the future.

Occasionally the island does have unexpected visitors. From its inception there are stories of vessels anchored offshore, and during World War II a sighting of an enemy submarine and the contents of Willis's armoury to defend their possession consisted of a single .303 rifle. The sighting of a yacht in late 1973 caused much speculation and invitations to come ashore were accepted. The ladies and gentlemen from the vessel, which was on a world cruise, enjoyed a pleasant evening, including dinner, and allowed mail to be hastily written by the Islanders and posted for them at the next port by the visitors.

Another visitor to the island has been Harry VK2BJL, a DXpeditioner of note, who enjoys doing the "impossible". Harry has visited Willis whilst en route from Melish Reef in the yacht "BANYANDAH" and operated mainly CW using the call VK9ZR. This and any visit to the island is always welcome, but on this occasion it allowed the dropping in of a few extra supplies and taking away a few letters to be posted to relatives and friends back home.

Willis Island is important not only as a daily observation and a key element in the Bureau's cyclone warning network.

The Director of Meteorology, Dr. John Zillman, who visited Willis in 1981, described the station as a most impressive operation, representing a superb exposure to the undisturbed trade winds with almost unique continuity of high quality records.

"It is an ideal site for the long-term monitoring of the evolution of general circulation and climate trends in the Australian region," he said.

Dr. Zillman said Willis had a tradition of excellence in the quality of its observational programme and, despite the harsh environment, the station was in pretty good shape.

"This is a great credit to the successive observing teams that have manned it over the years, and to the maintenance and transport units that support the station," he added.

Willis Island, a Commonwealth Possession, an important link to this country's weather forecasting system that affects us all, and a separate DXCC country, will not become a forgotten island, as some pessimistic amateurs suggest.

### ACKNOWLEDGEMENTS FOR RESEARCH,

PHOTOGRAPHS AND ADVICE:  
Dr. John Zillman, Director of the Commonwealth Bureau of Meteorology.  
Mr. Trevor Farrar, Public Relations Officer, Commonwealth Bureau of Meteorology.  
Mr. Paul Ruckert, Commonwealth Bureau of Meteorology.  
Dr. Peter Barclay VK3FR.  
Mr. Dave Shaw VK3DHF.  
Mrs. Austine Henry VK3YL.  
Also the publication WEATHER NEWS, house journal of the Bureau of Meteorology.

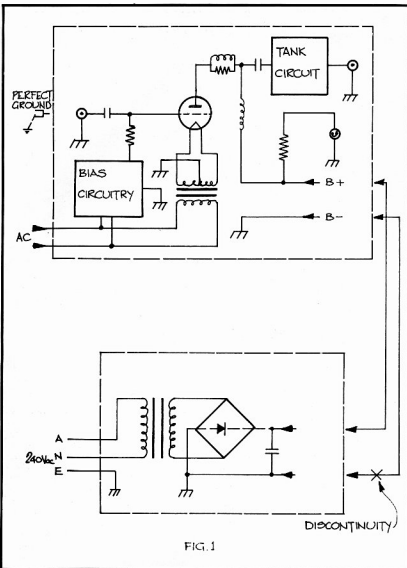


FIG. 1

fairly common arrangement adopted by home-brewers (and by some commercial ones, too). Let us assume the builder adopts the usual practice and grounds the PS via the AC earth return, but omits, as many of us do, to connect a separate earth return to the linear chassis. Next assume that the antenna and driving TRX are connected to the amplifier and the big switch is turned on. The linear tubes light, drive is applied and the appropriate plate voltage and current appears on the respective meters. All appears to be in order. Suppose now that, due to either error or cussedness, the B return has a discontinuity (see Fig. 1). Should our builder now have cause to disconnect the drive input coax, or perform some other operation that isolates the linear from a default earth return he will find himself shaking hands with the full B+ as his body now provides the B— return to ground.

I can leave it to the reader to work out the various combinations and circumstances that can lead to a similar result. The moral to the story is that, because we tend to conceptualise current going to, and coming from, the device of interest we see any interruption of the to or from circuit as rendering the device inoperative and neutral. We therefore fail to appreciate that decidedly unhealthy current can reach around via internal circuitry to make the case at a considerable potential with respect to grounded objects like ourselves. In the case in question the amplifier tubes provide the continuity for the B+ to the chassis and case, particularly as the separate filament transformer keeps the tubes lit and conductive.

Make sure that you are not relying on just one wire and its associated contacts for the B return between the linear and the HT power supply. One fairly, but not absolutely fail-safe way is to ground one side of the filaments at both ends of the connecting cable if these are supplied from the PS chassis. Another is to isolate the B minus on the PS side from the PS chassis. Alternatively, use a braided ground strap and bolt this to both boxes. Please check your home-brew devices and correct accordingly, lest you become an untimely addition to the Silent Key list.

#### AFTERTHOUGHT

After writing this article I took a look at the construction details of a number of linear amplifiers in the 1981 ARRL Handbook. All indicated only one return connection between the amplifier and the HT power supply. Filaments are invariably fed through a separate transformer with a non-earthed AC input. A check in the power supply section showed a 3,400V supply offering a two-terminal output. The B— was grounded to the chassis and the AC input was shown as having a three-way plug input with the ground to chassis. Users of such a PS/linear amplifier combination are only one pin connector away from a sudden end.

## Home Brew Linears — Treat or Trap?



An account of a fatal disaster that happened to a broadcast engineer some years ago, by Peter VK4ZDO, caused me to consider if a similar situation could happen to any amateur. As I saw that indeed it could, I decided to write this note to warn fellow amateurs of their peril.

The original situation arose from a discontinuity between the main Tx chassis and the high voltage B return from the power supply. This resulted in the Tx chassis, cabinet and antenna becoming HOT at B+ potential.

Rex Newsome VK4LR  
58 Prospect Terrace, St. Lucia 4067, Qld.

A similar situation could quite easily occur with a home-brew linear having a separate power supply. Consider the situation set

out in Fig. 1. This shows the basic configuration of a tube linear and power supply to be implemented on separate chassis, a

Join a New Member



## EQUIPMENT REVIEW

Ron Fisher VK3OM  
3 Fairview Avenue, Glen Waverley 3150

### THE YAESU FT-ONE GENERAL COVERAGE ALL-MODE SOLID STATE TRANSCEIVER

About a year ago, a message came along the grapevine that Yaesu were about to release a new super transceiver with the unlikely title of FT-ONE. For quite a time many thought the whole thing a great hoax, but slowly details of this new transceiver started to filter through and it soon became apparent that the FT-ONE was far from being a hoax, it indeed was to be a super transceiver. Yaesu have put in every feature and facility that both you and they could think of, and here it is.

#### WELL JUST WHAT IS THE FT-ONE AND WHAT DOES IT HAVE TO OFFER? LETS SPELL IT ALL OUT

##### FREQUENCY COVERAGE

The receive coverage is from 150 kHz to 29.9999 MHz continuous. Transmit coverage is for all amateur bands from 160 to 10 metres, including of course the new bands at 10, 18 and 24 MHz. In this aspect, I imagine that Yaesu have more than the amateur market in view and it would seem that full coverage transceiver would be quite a possibility for the commercial market.

##### MODES OF OPERATION

The FT-ONE has provision for SSB, CW, AM, FSK and, as an optional extra, FM. However, as sold in its standard form, only the SSB filter is included. A wide variety of filters for the other modes are available as options. We shall look at these in further detail later.

##### GENERAL DETAILS

The FT-ONE contains an incredible number of semi-conductors, 214 transistors, 35 FETs, 72 ICs and no less than 344 diodes. One wonders how we ever got along with a dozen tubes with a 5V3 in the power supply. It seems that times have changed.

The FT-ONE is both large and heavy. It measures 380 mm x 165 mm x 465 mm and weighs in at 19 kg. Although the transceiver will operate direct from 12V DC you will need a very roomy car to fit the set into for mobile operation. However, an AC power supply is a standard inbuilt fitting and this accounts for a fair percentage of the total weight and bulk of the transceiver.

##### DESIGN CONCEPT

I feel the best way to put this is to quote directly from the Yaesu brochure:—

"It is a curious fact that top of the line amateur transceivers usually boast of very low noise, spurious free dynamic range, clear audio receivers, while selectivity and sensitivity are treated very low-key, or not mentioned at all.

Often manufacturers will show you each specification under optimum conditions for measuring that particular quality, neglecting to mention the degradation of the other factors and of overall performance in actual operation. Others will draw your attention to one or another outstanding specification, such as super sensitivity; while either pre-

senting in a confusing manner or not mentioning at all the specification that had to suffer, such as selectivity, dynamic range or image response. This is done of course to try to make you think that a transceiver is better than it really is!

The FT-ONE was developed with the goal in mind of a finely balanced harmony of each attribute of the circuit, with the only constraint being that of the state-of-the-art of the electronics industry. The focus of the design effort was performance, without limit to cost or complexity, and the result is a transceiver that can truly offer you top performance with regard to high sensitivity and selectivity without sacrificing IF image rejection and receiver IMD or dynamic range. We invite you to test the performance yourself."

These are certainly brave words, so let us see just how the FT-ONE shapes up. In this regard I will later be introducing you to our new standardised checking system to be used in all our equipment reviews from now on, however a few more comments first.

The procedure for using the FT-ONE is quite different to any normal transceiver. Firstly there is no band switching in the accepted sense. At initial SWITCH ON the receiver is tuned to 0.000.0 kHz. One can then tune higher either with the tuning knob, by pushing the scan buttons on the



Main tuning dial and scan buttons, right hand side of panel

keyboard or the microphone or by entering the required frequency onto the key board. Tuning can be accomplished in steps of 10 Hz, 100 Hz or 1 MHz. There is, therefore, one band that covers from zero to 30 MHz. In the scan mode, the transceiver will stop when it hears a signal, the level of the signal required to stop the scan action is set by the position of the RF gain control.

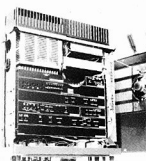
#### THE FT-ONE TECHNICAL FEATURES

The FT-ONE is chock full of interesting circuit developments. Unfortunately, without the help of a circuit diagram or circuit description I am only able to comment on a few of the more important features.

The receiver front end has come in for some unusual design. The RF amplifier for instance uses two medium power transmit bipolar transistors in push-pull to give a claimed output intercept point of +40 dBm. The same amplifier is used as a transmitter driver stage.

Pin diodes are used in the RF attenuator circuit and it would appear that the AGC also operates the front end attenuator on strong signals. Up conversion to 73 MHz is employed which means that images are non-existent. Yaesu claims a receiver dynamic range of 90 dB in the SSB mode and 97 dB in the CW mode.

Selectivity is taken care of with no less than 22 poles of crystal filtering. With the



Top view with cover removed. Speaker is mounted in top cover.

full complement of filters installed, the following selectivity figures are available, at -6 dB. For SSB, CW/wide and FSK/wide, 2.4 kHz. For CW/narrow, 300 Hz. For CW/medium and FSK/narrow, 600 Hz. For AM, 6 kHz, and for FM with the optional FM unit installed, 12 kHz. All of these represent maximum figures and of course can all be reduced with the use of the band-width control.

VFO selection, clarifier, scanning and filter selection are controlled by the central processor unit. It also selects the appropriate transmit output and receive input

filters to suit the operating frequency. The main tuning knob drives the synthesizer via an optical coupling system which means there is no mechanical load on the control. Considering this, the tuning has a very heavy feel. There is no adjustment to vary the tension on the tuning control. Tuning rates are 2 kHz, 20 kHz and 10 MHz per turn of the knob. The main tuning knob also operates the clarifier for receive, transmit, or both. The actual offset is displayed on an LED display to the right of the main frequency display.

The CW operator has been well taken care of in the design of the FT-ONE. In addition to the wide range of selectivity mentioned above, a CMOS keyer unit with front panel control can be installed. Either full or semi-break in keying can be selected, with full break in available up to about 50 w.p.m. As a further aid to the CW operator, audio peak and notch filters are included as standard features. The peak control used in conjunction with the narrow CW filter and shift/width controls enables signals to be pulled through almost impossible interference. The notch filter is useful to eliminate the heterodyne caused by stations tuning up close to your operating frequency. It does, however, have two slight disadvantages. Firstly, being an audio filter as distinct from an IF filter it is limited in the extent that it can remove a strong heterodyne from a weak signal due to receiver AGC action. The other factor is that its top frequency response is about 1.6 to 1.7 kHz. Above this frequency it is necessary to use the shift control, which I must admit, is most effective.

But perhaps the most incredible part of the FT-ONE is the tuning and memory system. The ten separate VFOs or memories if you prefer can be set up on each of the amateur bands, perhaps one on your favourite AM broadcast station, one on VNG to check on the accuracy of the digital readout (it's always spot on) and still have one to spare. You can even receive on one amateur band and transmit on another. The owner of an FT-ONE really needs a prolific imagination to sort out all the possibilities.

Some of the other nice additions you will find include the monitor system. This is great for checking microphone quality or compression level. If you record and replay other amateur transmissions it is an indispensable feature. Wear your headphones for microphone checking. The AMGC or Automatic Microphone Gain Control has been a feature on some Yaesu transceivers now for several years. With no close speaking input to the microphone the output from the speech amplifier is reduced to zero. Great to cut out that background from the family if you are lucky enough to have the gear inside the house.

Mention must be made of the excellent metering on the FT-ONE. Both meters are softly but clearly illuminated, the right one for "S" and ALC and the left a multi-functional meter for IC, voltage, discriminator (centre zero), processor compression and forward and reflected output indication for the transmitter. Top marks, Yaesu!



Close-up of operating controls, left hand side.

## SPECIFICATIONS

### TRANSMITTER

#### Frequency range:

160m band	1.8 to 2.0 MHz
80m band	3.0 to 4.0 MHz
40m band	7.0 to 8.0 MHz
30m band	10.0 to 11.0 MHz
20m band	14.0 to 15.0 MHz
17m band	18.0 to 19.0 MHz
15m band	21.0 to 22.0 MHz
12m band	24.0 to 25.0 MHz
10m band	28.0 to 29.99 MHz

#### Tuning steps:

Selectable 1 MHz, 100 kHz, 100 Hz, 10 Hz

#### Emission types:

LSB, USB (A3J/J3E\*), CW (A1/A1A\*), AM (A3/A3E\*), FSK (F1/F1B\*), \*\*FM (F3/F3E\*)

\* New emission designation per WARC '79

\*\* With optional FM unit installed.

#### Power output (minimum):

	160m through 15m	10m
SSB, CW	100W (PEP)	90W (PEP)
AM	25W	25W
FM, FSK	50W	50W

#### Carrier suppression:

better than -40 dB below peak output.

#### Unwanted sideband suppression:

better than -50 dB below peak output, (measured at 14 MHz, 1 kHz tone)

#### Non-harmonic spurious radiation:

better than -40 dB below peak output

#### Harmonic radiation:

better than -50 dB below peak output

#### Audio response:

better than -6 dB from 300 Hz to 2700 Hz

#### 3rd order intermodulation distortion:

better than -31 dB below peak output

#### Frequency stability:

less than 300 Hz drift during the first 30 minutes after 10 minutes warm-up; less than 100 Hz every 30 minutes thereafter.

#### Modulation type:

- A3J: Balanced Modulator
- A3: Low Level Modulation
- F3: Variable Reactance

#### Maximum deviation (FM, optional Unit installed):

± 5 kHz

#### FSK shift frequency:

170 Hz.

#### Output impedance:

50 ohms, unbalanced (nominal)

#### RF attenuator performance:

from 0 dB to 25 dB attenuation, continuously adjustable

#### Dynamic range:

better than 90 dB with standard SSB filter  
better than 95 dB with optional 600 Hz CW(M) filter  
better than 97 dB with optional 300 Hz CW(N) filter

#### Audio output power:

3-watts minimum (into 4 ohms, with less than 10% THD)

#### Audio output impedance:

4 to 16 ohms

#### Microphone impedance:

Low Impedance (500 to 600 ohms)

### RECEIVER

#### Frequency range:

150 kHz to 29.9999 MHz (continuous)

#### Clarifier range:

± 9.9 kHz

#### Sensitivity:

(CW, SSB, and AM figures measured for 10 dB S+N/N)

(\*) 1.8 to 30 MHz      (\*\*) 150 kHz to 1.8 MHz

SSB/FSK(W)/CW(W)

\* better than 0.3  $\mu$ V,      \*\* better than 5.0  $\mu$ V  
CW(N)

(with optional XF-8.9KCN filter installed)

\* better than 0.2  $\mu$ V,      \*\* better than 2.5  $\mu$ V  
CW(M)/FSK(N)

(with optional XF-8.9KC filter installed)

\* better than 0.25  $\mu$ V,      \*\* better than 3.0  $\mu$ V  
AM

\* better than 2.0  $\mu$ V,      \*\* better than 30  $\mu$ V  
AM

(with optional XF-8.9KA filter installed)

\* better than 3.0  $\mu$ V,      \*\* better than 50  $\mu$ V  
FM

(with optional FM unit installed)

better than 0.6  $\mu$ V for 20 dB of Quieting from 1.8 to 29.99 MHz

#### Intermediate frequencies:

1st IF: 73.115 MHz

2nd IF: 8.9875 MHz

Width/Shift IF: 10.76 MHz

Noise Blanker IF: 455 kHz

FM IF (with optional FM unit installed):

455 kHz

#### Image rejection:

better than -80 dB

#### IF rejection:

better than -70 dB for all frequencies

#### Selectivity:

	-6 dB	-60 dB
SSB, CW(W), FSK(W)	2.4 kHz	4.0 kHz
CW(N)*	300 Hz	900 Hz
CW(M)*, FSK(N)*	600 Hz	1.3 kHz
AM*	6 kHz	11 kHz
FM**	12 kHz	24 kHz

\* with optional filter installed

\*\* with optional FM unit installed

NOTE: These figures apply as maximum bandwidths with Width control set to maximum.

### FT-ONE AVAILABLE OPTIONS

Internal CMOS Keyer Unit

FM Unit

RAM Unit

IF Crystal Filters:

CW-N; 300 Hz\*, 8-pole, 8.9882 MHz

CW-M (FSK-N); 600 Hz\*, 8-pole, 8.9882 MHz

CW, FSK; 800 Hz\*, 6-pole, 10.7593 MHz

AM; 6 kHz\*, 8-pole, 8.9875 MHz

\* -6 dB BW

# Evaluation and On-Air Test of the FT-ONE

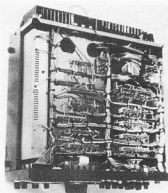
CATEGORY	RATING	COMMENT
<b>APPEARANCE</b>		
Packaging	***	Double carton with foam inserts.
Size	**	Largest transceiver yet reviewed.
Weight	**	One kg heavier than the old FT-401.
External Finish	***	Typical very good Yaesu finish.
Quality of Construction	***	Appears well put together.
<b>FRONT PANEL</b>		
Location of Controls	***	All come to hand easily.
Size of Knobs	***	Better than most current gear.
Labelling	***	All easy to read.
Meter(s)	****	Best of any transceiver yet seen.
VFO Knob Feel	**	Rather stiff. No spin action.
Dial Readout —	NA	
Analogue	***	Very easy to read.
Digital	**	
<b>REAR PANEL</b>		
	**	Most connections hidden below heatsink.
<b>RECEIVE OPERATION</b>		
VFO Stability	****	Total drift below 100 Hz.
Digital Dial	****	Shows exact frequency in each mode.
Analogue Dial	NA	
Memories	****	Most effective and easy to use.
Sensitivity	****	Equal or better than other top line transceivers.
RF Attenuator	***	Continuously variable.
RF Gain Control	***	Smooth progressive action.
Selectivity	****	Review transceiver contained all optional
IF Shift	****	filters and, in conjunction with shift/
Pass Band Tuning	****	width control, would take care of all needs.
Notch Filter	**	Only works up to 1.6 kHz heterodyne.
Optional Filters	****	Excellent range available.
<b>SPURIOUS RESPONSES</b>		
"S" Meter	*	None audible.
AGC Performance	***	Ideal for DXpeditions. Gives everyone "S" 9 or better.
Signal Handling	****	Very smooth.
	****	Could not find any overload.
<b>STATUS INDICATORS</b>		
RIT Operation	****	12 LED indicators.
	****	Separate digital readout to indicate offset.
<b>NOISE BLANKER</b>		
Line Noise	**	Reasonably effective on most types of electrical and appliance noise.
Auto Ignition	**	Almost complete elimination of ignition noise.
Woodpecker	*	Very little apparent reduction.
Effect on Signal Handling	***	Slight cross mod. with full NB action.
<b>QUALITY OF RECEIVED AUDIO</b>		
Int. Speaker	*	Mounted in top of cabinet with very little baffling.
Ext. Speaker	***	Much better quality from my own speaker.
	***	Strangely, no external matching unit offered.
Headphones	***	Output level good for low imp. stereo phones.
<b>COOLING FAN NOISE</b>		
TRANSMIT Operation —	*	Fan noisy and operates at all times.
CW Power Output	**	160 80 40 30 20 15 10
PEP Power Output	**	110 100 100 95 90 85 80 watts.
Audio Response	***	As indicated on scope, within 10% of above.
Audio Sensitivity	***	On air reports very good.
ALC Action	***	Plenty of MIC gain.
Speech Processor	***	Smooth action. No flat topping on scope.
Metering	****	Effective RF processor.
Cooling	***	Best yet.
Relay Noise	***	Heatsink always cold due to continuous fan operation.
VOX Operation	***	Not obtrusive.
	***	Smooth VOX system. Controls not grouped on front panel.
<b>MANUAL (Owner's Handbook)</b>		
	**	See comments in text.
<b>ACCESSIBILITY FOR SERVICING</b>		
	***	Most boards are of plug-in type.

\* Poor

\*\* Satisfactory

\*\*\* Very Good

\*\*\*\* Excellent



Underside view of chassis

#### MANUAL

I was somewhat disappointed with the standard of the FT-ONE handbook. While it covers the operating aspects of the transceiver quite well and also the installation of options such as the FM unit, keyer unit and the additional filters, there is no technical information. However, Bail Electronics inform me that they have just received stocks of the complete workshop manual for the FT-ONE which will be included with every transceiver sold and will be forwarded to all present owners who have purchased their "ONE" from Bail Electronics or one of their accredited agents. I look forward to seeing a copy of the manual and will comment on it in a future issue.

Yaesu also offers the FT-ONE(G) transceiver for use by government agencies and other users authorised to transmit on frequencies from 1.8 to 30 MHz. The FT-ONE(G) is a completely self-contained general coverage transceiver incorporating all of the features of FT-ONE plus the added capability of general coverage transmission. The FT-ONE(G) is available by special order through any authorised Yaesu dealer.

#### CONCLUSIONS

The FT-ONE, as sold in Australia, represents very good value. If you consider that the selling price in the USA is around \$2,300 we are getting them at bargain price. The combination of facilities in the FT-ONE is not obtainable in any other transceiver.

It is of course up to you whether you can make use of the various facilities included in this transceiver.

My thanks to Bail Electronics for the loan of the FT-ONE used to compile this review. All enquiries about price and availability should be directed to them or to one of their accredited agents.

## Safety Precautions for Beryllium Oxide



The following information on the use and handling of Beryllium Oxide was kindly supplied by courtesy of Geoff VK3YFA and The Scalar Group. (Reproduced by arrangement from The Radio Bulletin, EMDRC, May 1982.)

Sintered beryllium oxide (beryllia) parts can be handled and used without any risk of toxicity providing a few simple rules are observed. There is, however, toxic hazard if dust or fume from the material are inhaled, resulting in a serious respiratory disease.

In addition to the hazard from inhaling beryllium products, there have been reported cases of skin reaction from contact with beryllium. These occur mainly from contact with water-soluble beryllium compounds and not beryllium oxide. However, it is a wise precaution to handle beryllia parts with gloves or similar protection. This is imperative if the operator has any cuts on his hands. If, due to a cut or abrasion, beryllia enters the skin, it should be dealt with immediately by washing and normal first-aid whence it will be generally found to cause no further trouble.

#### CONTROL OF DUST OR FUMES

If dust or fumes are created in the operations carried out on beryllia, there must be adequate extraction of the contaminated air in the working zone to prevent it being inhaled. Should there be any doubt about liberation of dust or fume, it is recommended that air samples be taken to measure the contamination. It is laid down that the maximum permissible air contamination by beryllium is as follows:—

- (a) In a process area:—
  - (i) The maximum allowable concentration of beryllium in the breathing zone averaged over any 8 hour period is 2 micrograms per cubic metre.
  - (ii) The daily average must be within the above limit but even in exceptional circumstances the concentration must not exceed 25 micrograms per cubic metre.
- (b) Outside a process area:—

Concentrations must not exceed 0.01 micrograms per cubic metre averaged over a month and calculated with reference to the breathing zone. This level may be observed by stack

monitoring and by controlling discharge to an appropriate daily amount.

It is emphasised that these are maximum values and all exposures must be kept as low as is practicable.

The normal method of extraction is an enclosed working zone which is exhausted by a blower and the extracted air passed through an absolute filter. The extraction rate should be great enough to provide an inward flow of at least 150 ft. per minute at any aperture in the enclosure. The enclosure is most readily constructed from transparent acrylic plastic and may have an opening at the front sufficient to enable access of the hands for working with the parts.

This arrangement can be used for housing metallizing furnaces, grinding machines, etc., or any other operation giving rise to dust or fume. If beryllium oxide powder is being handled, an enclosed glovebox is recommended.

Handling of clean beryllia parts, such as in assembly or inspection need not be done in an enclosure since there is virtually no risk of toxic amounts of dust being produced.

Sintered beryllia is very hard and slight abrasion does not normally create dust. However, continuous abrasive action should be avoided.

Very simple hand lapping operations can be done with the parts submerged in a liquid provided that safe disposal of the liquid can be arranged.

Liquids used for processing beryllia, e.g. acid cleaning solutions, electroplating baths, should not be disposed of through normal sewage unless the beryllium content is less than 1 part per million.

Scrap beryllia should be placed in polythene or similar bags otherwise suitably wrapped and sealed. We shall be pleased to advise about disposal of scrap. If beryllia is broken, the fragments should be gathered and treated as scrap.

Heating in a moist atmosphere, such as metallizing in wet hydrogen, may cause volatile  $\text{Be}(\text{OH})_2$  to be evolved. The rate of volatilization is not appreciable below about 1,000°C but in any heating operation of this sort attention should be paid to the possibility that a toxic contamination could arise.

**HELP** WITH INTRUDER WATCHING



## WARNING!!

Disposing of your old rig??  
Please ensure it goes **ONLY** to someone licensed to use it on **YOUR** bands.





# NOVICE NOTES

Compiled by Ron Cook VK3AFW  
7 Dallas Avenue, Oakleigh 3166

## Multi-Band Dipoles

The half-wave dipole is usually only thought of as a single band antenna. The ARRL Radio Amateurs' Handbook gives the length of a half-wave as  $143/f$  where the length is in metres and  $f$  is the centre frequency (in MHz) of the operating band. (The length in feet is given by  $468/f$ .) The feed resistance would be about 72 ohms if the dipole were in free space. In practice if the dipole is more than 0.5 wavelengths above open ground the feed resistance will be within 20 per cent of 72 ohms. If the height is less than 0.25 wavelengths the resistance will reduce from 72 ohms to 0 in proportion to the height above the effective ground. The apple tree and the clothesline, etc., all will have an influence too. The lowest VSWR can be obtained by successive measurements at the operating height after making small length adjustments.

Now how do we use the dipole on more than one band? If there is a three-to-one relationship as exists for 7 MHz and 21 MHz, then a dipole cut for the lower band also works well on the higher band. The radiation resistance may be higher but a good match is usually obtained without any adjustment. A gain of almost 2 dB can be obtained, in directions inclined at  $45^\circ$  to the line of the dipole, compared to a simple half-wave on the higher frequency. (7 MHz operators should keep their harmonic radiation very low to avoid interference to stations on 21 MHz.) Dipoles usually give an effective attenuation to second harmonic signals. Now how does the novice use a dipole on 3.5, 21 and 28 MHz?

A wire about 26 metres long gives medium reactances on all present VK amateur bands. If a combined length of feedline and half the dipole in this region is used an antenna tuner will easily give a good match. This system was very popular 25 years ago when transmitters used pi couplers in the final amplifiers. A VSWR of 3:1 could usually be properly matched to the PA valves. Today's transceivers will shut down if presented with such a load (yes I know some sets do still have LOAD and TUNE controls, but these are the last remnants of valve technology: modern dinosaurs). So in most cases an ATU (Antenna Tuning Unit) is required.

A most effective but simple and cheap multi-band antenna is the humble dipole. Verticals take up less space and can give a low radiation angle but can be more difficult for the novice to build and in a typical suburban installation lose a lot of signal by absorption in nearby trees, clotheslines, powerlines, etc.

A dipole, on the other hand, can usually be strung in a more satisfactory situation above the apple tree, clothesline, etc. Of course these practical problems can be avoided by buying a farm in open elevated grazing country and moving the station there.

## TUNED DIPOLE-FEEDER SYSTEMS

Different dipole feeder lengths will give different characteristics and will operate on several bands. The feedline must not be coax — the commercially available 300 ohm open-wire TV feeder or home-brew open-wire line should be used. Fig. 1 illustrates the arrangement. The accompanying table shows three different combinations of feeder and flat-top combination lengths.

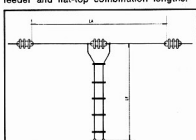


FIG. 1: Centre-fed Multi-Band Dipole.  
Flat-top — 16 SWG hard copper  
Feedline — 300 ohm open wire

### DIMENSIONS

Band (MHz)	LA (m)	LB (m)
3.5, 21, 28	41.1	12.8
3.5, 7, 14, 21, 28	20.4	20.0
3.5, 7, 14, 21, 28	31.1	10.1

The first example is a full-size half-wave on 3.5 MHz, three full waves on 21 MHz and four full-waves on 28 MHz. (If you experience trouble obtaining a match on 28 MHz with this system on your ATU then try a small value wide-spaced tuning capacitor in series with the feeder.) Operation on 3.5 MHz is of course the same as for a normal half-wave dipole. On 21 and 28 MHz the operation may be better or worse than a dipole, depending on the relative directions of the dipole wire and the direct (great circle) signal path. This is because of the lobes and notches that develop as the dipole length is increased.

One rule not widely known is that for a dipole there are two lobes and two notches in the radiation pattern for each half-wavelength of length. For a general purpose antenna the extra notches are a disadvantage as some stations may be attenuated by 20 dB (compared to a dipole).

The second example in Fig. 1 shows a dipole cut for fundamental resonance on 7 MHz and fed with a feedline half a wavelength long at that frequency. On 3.5 MHz the antenna operates as a shortened half-wave with its centre folded down in the upper half of the feedline. On 7 MHz it is of course a half-wave dipole. On 10.1 MHz the dipole is almost three-quarters of a wavelength long and operates accordingly, and on 14 MHz it is a full-wave dipole. On 21 MHz it is three half-waves long and two half-waves long on 28 MHz. This arrangement is a convenient size for the city dweller and performs well on 7, 10.1, 14 and 21 MHz, in particular with acceptable performance on 3.5 and 28 MHz.

The third example is a dipole cut to three half-waves for 14 MHz, and fed with a half-wave length of feeder. The length of half the flat-top plus the feeder is the "magic" length mentioned earlier. It has been known as the GSRV aerial for 30 years. If the feeder must be longer than multiples of quarter wavelengths at 14 MHz are recommended. The effective lengths for the various bands are:—

- 3.5 MHz — short  $\frac{1}{2} \lambda$ .
- 7.0 MHz — short  $2 \times \frac{1}{2} \lambda$ .
- 10.1 MHz — extended  $2 \times \frac{1}{2} \lambda$  (not originally designed for this band).
- 14.0 MHz —  $3/2 \lambda$ .
- 21.0 MHz — extended  $2 \lambda$ .
- 28.0 MHz —  $2 \times 1 \frac{1}{2} \lambda$ .

## TRAP DIPOLES

If you do not wish to use an ATU but still want multi-band operation, then you could use a trap dipole system as shown in Fig. 2. The trap dipole operates as follows. The centre of the dipole is a half-wave long for the highest band and operates as a normal dipole. Resonant, parallel tuned circuits are fitted to the ends of this dipole.

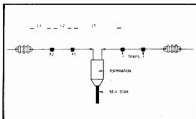


FIG. 2: Multi-Band Trap Dipole

- L1 = half wave on highest band.  
 F1 = resonant trap at highest band.  
 L2 = one quarter wavelength at second highest band less effective length of F1, less L1/2.  
 F2 = resonant trap at second highest band.  
 L3 = One quarter wavelength less L1/2 + L2 less effective lengths of F1, F2.

If these are resonant at the same frequency as the dipole then they have a very high impedance at that frequency. Connecting them to the dipole isolates it from any wire that may be added to the outer side of the tuned circuit. As the tuned circuits trap the RF at the resonant frequency in the dipole they are often called traps.

For operation at a second lower band a length of wire is added to each trap until half-wave resonance is obtained. Another set of traps may be made for this frequency and additional wire added to obtain half-wave operation on a third frequency.

The traps appear as a small inductance on the lower frequencies thus reducing the physical size for the dipoles for the lower frequencies. To obtain good efficiency the traps should have low losses. In conventional traps this means a high Q factor and consequently a narrow bandwidth. Thus if the antenna bandwidth were limited by the traps alone, traps with a Q of 300 would limit 14 MHz operation to about  $\pm 50$  kHz from the design frequency.

#### ADVANTAGES OVER A TUNED FEEDER SYSTEM

1. Low VSWR on all bands without an ATU.
2. Dipole radiation pattern on all bands.
3. Good efficiency as none of the radiator is folded up in feeder and there are no ATU losses.
4. A coaxial feeder can be used with consequent more convenient lengths and easier installation.

#### DISADVANTAGES COMPARED TO A TUNED FEEDER SYSTEM

1. Narrower VSWR bandwidth.
2. Loss of harmonic suppression that an ATU may supply.
3. Physically larger than some tuned feeder systems for the same bands.
4. More complicated flat-top construction requiring low loss (high Q), high voltage (5 kV or more), weatherproof capacitors.

There are a number of ways of making good traps. A quarter wave-length transmission line makes a good trap if the far

end is shorted. Coaxial cable can be used to make high voltage low loss capacitors.

A recent article in HAM RADIO by N3GO describes a new way to make traps which he claims give wider bandwidth without extra losses. Fig. 3 shows the construction of the N3GO traps. A length of RG-58/U coaxial cable is wound as a close spaced coil on a 3.2 cm (1 1/4 in.) diameter former. The braid forms an inductor which is resonated by the distributed capacitance between adjacent turns and the capacitance between the inner conductor and the braid.

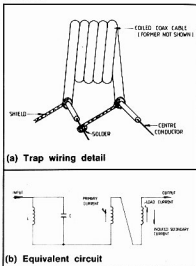


FIG. 3: N3GO Traps

By connecting the braid as shown in Fig. 3(a) the equivalent of the circuit shown in Fig. 3(b) is obtained. In addition to the parallel tuned circuit we have a transformer connected so that the primary current is made to flow through the secondary in the opposite direction to the induced secondary current. As the ratio is 1:1 no current flow would take place at all if the primary to secondary coupling were perfect. In practice it is not so, so an appreciable current can flow. N3GO claims that at resonance the coupling is increased. So we have the narrow band trap (high Q) being assisted by the transformer choking action to produce a high impedance over a useful bandwidth, one that is greater than would be achieved by the unusual connection of

one part of the antenna to the braid and the other part to the inner conductor.

In other respects the antenna functions as any other trap dipole system.

#### CONSTRUCTING N3GO TRAPS

The lengths of coax in Table 1 include 7.6 cm (3 in.) tails to extend beyond each coil for wiring of the trap and splicing to the antenna. The drill used in the following procedure was 5 mm (0.2 in.). RG-58/U cable was used. N3GO's instructions are as follows:—

"Form lengths given permit 1 inch (2.5 cm) to extend beyond each side of the coiled coax. This facilitates using the form as a support for each antenna section and can be adjusted to suit personal preferences. All traps must be close wound and should be as tight as possible to ensure mechanical stability. The coax lengths permit 3 inches (7.6 cm) to extend beyond each side of the coil, permitting antenna-section splicing and the wiring of the trap itself.

With the form and the coax cut as indicated in Table 1, assembly can begin. An 0.2 inch (0.5 cm) drill was selected to allow a snug fit for the coax.

1. Begin construction of the trap by drilling one hole approximately 1 inch (2.5 cm) from the end of the form.
2. Strip 3 inches (7.6 cm) of insulation off one end of the coax, and separate the shield and centre conductor.
3. Strip 2 inches (5 cm) of insulation off the centre conductor. Insert this end of the coax into the hole drilled in the PVC form until the coax jacket extends into the inside of the form no more than 0.25 inch (0.6 cm).
4. Very tightly wrap the coax around the form the specified number of turns and locate the point where the coiled coax should end. Mark this spot.
5. Move the coax end away, and drill a second hole at the marked location as near as possible to the next turn of the coil without cutting the jacket.
6. Slightly rewrap the coil to take up the slack that may have been introduced, and mark the end of the coax 0.25 inch (0.6 cm) beyond the hole just drilled.
7. With a sharp knife cut approximately halfway through the jacket material only, then completely around the coax at this location.

TABLE 1: Dimensions for N3GO Traps

Centre Frequency (MHz)	Former length (cm)	Coax length (cm)	Number of Turns	Effective length (cm)
3.750	15.2	312.6	19.8	305
7.150	10.7	179.6	10.9	165
10.075	9.1	136.4	8.1	122
14.175	8.1	105.3	6.0	92
21.225	7.1	79.3	4.3	66
28.850	6.6	65.0	3.3	51

8. In a similar fashion make a cut lengthwise along the cable from the first cut to the end of the coax. Do not remove the jacket material at this point. Again, tightly rewind the coil and insert the prepared end of the coax through the second hole.
9. Pull the coax from the inside of the form until it lies flat at both ends. (Some massaging of the end of the coax where it passes into the form may be required.) The jacket may be easily removed from the coax at this point and shield and centre conductor separated.
10. Remove all but about 1 inch (2.5 cm) of insulation from the centre conductor. Twist together the centre conductor of one side and the shield of the opposite side. This connection should be internal to the coil form and tightly twisted to keep the leads as short as possible.
11. Cut off all but 0.5 inch (1.3 cm) and solder this connection.
12. Drill a hole 0.5 inch (1.3 cm) from each end and on the same side of the form. These holes are used to support the elements when used in a dipole or wire vertical.
13. Wrap a turn or two of the remaining end of the centre conductor through the hole on its end of the form, and do likewise with the remaining end of the shield through the opposite hole.

The trap is now complete and ready for installation in an antenna. A silicone-base caulk may be used to seal the traps against weather. I chose not to seal mine and they have been in service for more than a year without degradation in performance.

#### TUNING A TRAP ANTENNA

The last column in Table 1 provides the effective length of wire in the trap used. This length should be subtracted on all bands where the trap looks like an inductor to provide a reasonable starting length before tuning.

Start with the highest band used and construct a half-wave dipole using the traps for that band as end insulators. Tune the antenna as desired with the traps connected before going any further. Once tuned, any lower band can be added by connecting more wire to the opposite sides of the traps and extending the antenna from this point. Calculate the length of a quarter-wave section on the desired lower band, subtract half the length of the dipole just built, and finally subtract the trap's effective length provided in Table 1. The result is the length of wire required on the opposite ends of the traps.

Adjust the added sections only to tune the antenna so as not to affect the higher-band antenna that you have already tuned. Traps may be used as the end insulators for this new lower band, and another band (lower still) can be added using the same procedure. When completed, recheck VSWR on all bands. There should be little or no difference from where they were initially tuned."

#### CONCLUDING COMMENTS

So if you want multi-band performance and don't want to use a trapped vertical give these dipoles consideration.

To operate any of these systems on 1.8 MHz the two conductors of the feeder can be connected together and loaded up with the ATU against ground. The better the ground the better the performance.

If you don't want to make your own traps then SCALAR (an AR advertiser) can supply traps for several bands. Don't forget to tell them you saw their advertisement in AMATEUR RADIO.

There are other variations on the two themes discussed here. For example, if we use a single trap using 60 pF capacitors to get resonance on 7.2 MHz with the inner dipole also resonant on 7.2 MHz, then five band operation can be achieved if the outer dipole is resonated on 3.75 MHz. This is known as the W3DZZ multi-band dipole. Good matching can be obtained on 3.5, 7 and 21 MHz quite easily. I have found that the low VSWR and 14 and 28 MHz is elusive, particularly if you set the traps to 7.1 MHz and adjust the outer section for resonance a little lower, say near 3.6 MHz. Of course I shouldn't complain that it performs differently when the dimensions are changed but it should be possible for the dedicated experimenter to adjust the trap parameters and the resonance on 7 and 3.5 MHz so that acceptable VSWR can be obtained for the VK portions of the bands. SCALAR sell traps, with construction information, suitable for the W3DZZ dipole.

Most texts warn operators not to use an ATU with a trapped antenna system. I see no good reason for this. After all, if the trap is operated at its resonant frequency then it has the highest possible voltage across it and the highest circulating currents. Using an ATU at the shack end of the feeder will improve the operating conditions for the transceiver without any significant effect on the antenna-feeder system.

Of course if the VSWR is 3:1 or more on a coaxial feeder then the losses may begin to be noticeable so operation under those conditions is not recommended even if an ATU is used to reduce the VSWR for the transceiver.

Finally if you use more than two traps in a dipole the bandwidth on all bands is likely to be considerably reduced. Use two trap dipole systems with a common feeder if you want more bands. Spread the ends 2-3 metres apart to reduce interaction between the dipoles.

And if you have only one central support then the dipole systems described can be installed as an inverted V configuration. The last 1-2 metres at the ends can be bent back at angles of up to 90 degrees to fit the system in and no change of performance will be noticed. Don't put any sharp bends in open-wire feeders as this will change the feeder's impedance at that point and probably increase the VSWR.

73. VK3AFW.

#### REFERENCES

1. The Radio Amateurs' Handbook, ARRL, 59th Ed., 1982.
2. The ARRL Antenna Book, ARRL, 12th Ed., 1970.
3. "Trapping the Mysteries of Trapped Antennas", Gary E. O'Neill N3GO, Ham Radio, October 1981.
4. The Amateur Radio Handbook, RSGB, 3rd Ed., 1962.

## Electric Shock



The smallest current which can be detected through the skin ("threshold of perception") is generally considered to be approximately 1 mA RMS at 50 Hz AC and 5 mA DC. (The tongue is considerably more sensitive.)

On increasing the current a stage is reached at which severe muscular contractions make it difficult for the casualty to release his hold. This "threshold of muscular decontrol" is about 15 mA at 50 Hz AC and 70 mA DC; in the lower frequency ranges the effect increases with frequency, e.g. at 60 Hz the threshold current is 7 mA. Very high frequencies do not produce this effect. Increase in current beyond about 20 mA 50 Hz AC or 80 mA DC brings a danger to life.

The next stage is irregular contractions of the heart, leading to cessation of the pumping action. This occurs at about 100 mA for both AC and DC and is almost certain to be fatal. If the current through the body rises as high as 1 amp, severe burning results.

The electrical resistance of the body can vary enormously from person to person and in the same person at different times and under different conditions. This resistance can be as high as 10,000 ohms or as low as a few hundred, depending largely on whether the skin is dry or moist. Even with a resistance of 10,000 ohms the 230V AC supply will result in a current of more than 20 mA, which could be lethal. In fact, much lower voltages can be dangerous and death has been recorded from only 60 volts.

The above remarks apply essentially to current passing through the body, e.g. from hand to hand, or hand to foot. It is possible for part of the body, e.g. a finger, to short-circuit two conductors, which will not necessarily result in electric shock as described above, but which can inflict severe burns which require medical treatment. "The Propagator" — from Everett and Jenkins, "A Safety Handbook for Science Teachers".

**IS YOUR CALL SIGN  
SHOWN CORRECTLY ON  
YOUR AR ADDRESS LABEL**



# Exotic Modulations



Ron Henderson VK1RH  
171 Kingsford Smith Drive, Melba, ACT 2615

Many amateurs may have heard of the expressions Narrow Band Voice Modulation and AMTOR and wondered where they fitted into the amateur radio world. This article, based upon a shorter broadcast item used by VK1WI in late 1981, has been prepared as part of a general updating and education service to amateur operators. Suitable references are supplied for those who wish to read further into the subjects.

## NARROW BAND VOICE MODULATION

Narrow Band Voice Modulation (NBVM) or, to give it its new technical description, 2K00J3EKN modulation is a technique whereby speech processing permits normal voice contacts to be transmitted in a bandwidth of 2 kHz or less. NBVM was first presented to the amateur community in 1978 in a series of QST articles by Dr. Richard Harris of VBC Inc. and J. F. Cleveland WB6CZX (References 1, 2). The aim of NBVM is to narrow the occupied spectrum by employment of both frequency and amplitude companders. Compander is an acronym for compressor-expander, a process which compresses on modulation and expands at demodulation to achieve a greater dynamic range.

Spectrum analysis of normal speech shows high energy bands below 600 Hz and in regions or formants at 1600 to 2000 Hz and 2300 to 2600 Hz with little energy

beyond 4000 Hz. What is above 4000 Hz is called unvoiced energy, it is noise like in content and varies little with the actual speech content. This has been recognised and is discussed fully in Reference 3 from which Figure 1 has been produced. The distinct energy bands are clearly delineated on the wide-band (300 Hz BW) spectrogram (Figure 1A), whilst the individual harmonics of the voice excitation are evident on the narrow-band (45 Hz) spectrogram (Figure 1b).

Speech synthesis can be based on formant, also known as terminal analog synthesizers, or on acoustic tube analog synthesizers. The Texas Instruments "Speak and Spell" device is an example of the former process; an interesting offshoot of this is the voice ident employed on GB3CE, a UK 70 cm repeater which announced its identification and location (Reference 4).

In order to create NBVM it is first necessary to filter off and retain the 350 to 600 Hz first formant. Then the second and third formants ranging from 1000 to 2500 Hz are inverted and down converted by use of a 3100 Hz local oscillator, to yield a 600 to 2100 Hz band as shown in Figure 2. Re-combining this signal with the first formant yields a signal extending from 350 to 2100 Hz containing the necessary intelligence. During the system development a lower maximum frequency of 1600 Hz was also tested. This was achieved by limiting the filtered higher voice frequency spectrum to 2000 Hz, rather than 2500 Hz and employing a 2600 Hz local oscillator.

Having been frequency compressed the audio signals are next amplitude compressed on a 1 dB out for 2 dB in basis and then radiated through a normal SSB transmitter at about 1750 Hz or the alternate 1250 Hz bandwidth.

Reception speech processing is the inverse of this transmission processing with system noise replacing the unvoiced sound above the upper input cut-off frequency.

Equipment construction is simplified by use of the NE571N amplitude compander from Signetics and purpose designed ICs made by VBC for the active filters, 3100 Hz local oscillator, balanced mixer, microphone pre-amplifier, CMOS analog switches and buffer amplifiers of the frequency compander. These last named functions are all contained in the one 40 pin VBC3000C chip.

Harris and Cleveland suggest that the speech processor can be built from discrete components and ICs, however it would be bulky and difficult to align. For example the filters alone would account for 26 active stages and the audio passes through about 20 operational amplifiers in each direction.

Little has been heard about NBVM in the past year, so one must ask was it a technical success? Have US amateurs shown reluctance to pay the cost of proprietary chips needed to easily implement the system? Readers are invited to write and describe their experiences with NBVM.

## AMTOR

Amateur Microprocessor Teleprinter Over Radio, abbreviated to the initials AMTOR, is an amateur radio implementation of CCIR Recommendation 476. Commercial implementations of CCIR 476 use trade names such as Spector, Sitor and Microtor.

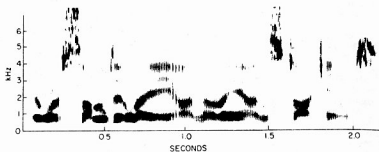


FIG. 1a: Wideband Spectrogram (BW = 300 Hz).

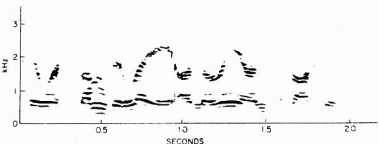


FIG. 1b: Narrowband Spectrogram (BW = 45 Hz).

FIG. 1: Speech Spectrograms of the utterance "There was some delay on the rayon stockings" (from Reference 3).

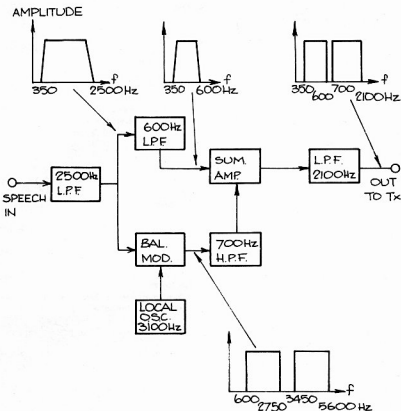


FIG. 2 BLOCK DIAGRAM OF FREQUENCY COMPANDER FOR TRANSMIT FUNCTION.

AMTOR was first publicised by J. P. Martinez, G3PLX in the RSGB journal Radio Communication in 1979 (Reference 5). The aim of the system is to provide highly reliable radio teleprinter communications over circuits where duplex operations are not possible, for it will be appreciated that error correction techniques are very simply implemented on duplex circuits.

AMTOR uses a seven bit data element code to transmit information, hence there are 128 possible combinations and of these only 32 are recognized as valid characters to match up with the conventional teleprinter 5 unit code. By applying a form of parity check to the AMTOR characters and only accepting code sequences which contain three "zeros" and four "ones" the system can test for invalid characters. Actually this yields 35 valid characters from a 7 unit code format, that is the 32 teleprinter characters plus 3 special characters, known as RQ or repeat request, the alpha idle character and the beta idle character. Three control characters, No. 1, 2 and 3, having identical format to the teleprinter characters L, blank and N are also defined but are only used on the reverse or acknowledge path from receiver to sender so are not confused in the system.

The AMTOR system functions by sending bursts of three characters in blocks over any convenient bearer, usually as frequency shift keyed data, with a block acknowledgement single control character sent in the reverse direction. This acknowledgement is either control signal 1 or control signal 2 sent alternately after each completed 3 character block. Perfect reception then results in continuous passage of the message, broken down into 3 character blocks separated by a control signal response. This is shown in Figure 3a.

Should an erroneous block be received, as detected by the "zeros" count for each character not being 3, the same control signal as that last sent not the alternate is responded causing the sending station to repeat the three character block. See Figure 3a.

Should the acknowledgement signal not be received the sender sends three RQ, i.e. repeat request characters to trigger a repeated acknowledgement as shown in Figure 3a.

At the end of a message or transmission sequence the receiving station sends control signal 3 to indicate that it is ready to transmit a message. If the sending station is ready for the change over it replies with the sequence, beta, alpha, beta, which effects the change in role between sender and receiver as shown in Figure 3b. The system could thus be described as under positive control at all times.

As the bearer circuit path deteriorates the repeat cycle will be invoked more and more frequently thus ensuring that an almost perfect message is received but at a reduced overall rate.

Statisticians will observe that with only random noise as input some 34 out of the 128 possible codes will be printed as valid, hence 100% perfect copy is not achievable in theory with system noise present.

AMTOR operates in three modes, A B and L. Mode A has two substates, master and slave, and is used for one to one contact as described above.

Mode B is a facility to cater for broadcast or multi-receiver situations. The sending station sends two streams of single characters in an alternating interlaced sequence without reply breaks. The second stream is a repeat of the first stream delayed by 350 msecs to counter interference bursts. Any character mutilated in both streams is replaced by a blank by the processor logic. The output is an improvement over conventional RTTY due to the dual stream or time diversity and character parity check but not as good as Mode A. Mode L is a listening capability which provides no error correcting features other than to suppress repeated blocks; it has general call applications.

The AMTOR signal processor is constructed using a 6802 microprocessor and two 2708 ROMs pre-programmed with the

Typical recorded performance figures are as follows:—

Useable Signal	% Message Correct	Spurious Characters Received	Relative Transmission Time
100%	100	0	1
80%	99.8	0.5	1.25
50%	99.2	1.9	2
20%	96.8	7.5	5
5%	85.2	35.6	20

Table showing AMTOR Performance

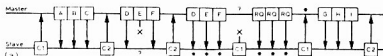


FIG. 3a: Master sending to slave with errors.

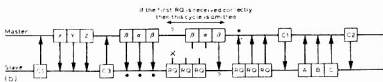


FIG. 3b: Change over from master to slave sending.

FIG. 3: AMTOR Character Streams.

(Any error at points marked \* cause a repeated cycle until the signal gets through and then the next cycle proceeds.)

AMTOR software. Contacts for the purchase of full or partial kits to implement the system may be found in References 6 and 7. It is believed that AMTOR is used in Australia by some members of ANARTS.

#### REFERENCES

- Harris, R. W. and Cleveland, J. F.: A Baseband Communication System, QST, Nov. 1978.
- Harris, R. W. and Cleveland, J. F.: A Baseband Communication System, Part 2, QST, Dec. 1978.

- Oppenheim, A. V. (ed): Applications of Digital Signal Processing, Prentice Hall, N.J., 1978.
- Dilworth, I.: Synthesized Speech on GB3CE, Radio Communication, May 1981.
- Martinez, J. P.: Amtor, an improved radioteletype system, using a microprocessor, Radio Communication, Aug. 1979.
- Martinez, J. P.: Amtor, the easy way, Radio Communication, Jun./Jul. 1980.
- Martinez, J. P.: Amtor — a progress report, Radio Communication, Sep. 1981.

## Military English and its Meaning



Under consideration . . . Never heard of it.

Under active consideration . . . Will have a shot at finding file.

Snowed under . . . Unable to take more than 1½ hours off for lunch.

Have you any remarks . . . Can you give me an idea of what this is about?

An expression of public opinion . . . Favourable comment in the press.

Putting him in the picture . . . A long and highly inaccurate statement to a newcomer.

Ordnance have it in hand . . . You had better try and do the job yourself.

Rather in the air . . . Completely ignorant of the whole situation.

You will remember . . . You have either forgotten or you never knew.

D.A.D. — Greek term meaning not available at present.

Concur generally . . . Have not read the documents.

Passed to you . . . You try nursing this baby — I am bored with it.

Yes, I think this is the answer . . . A sudden inspiration by a higher authority nullifying your previous suggestion.

From "Jimmy", Journal of Royal Signals ARS (VK/ZL Chapter), April/May '82

## Multi Band Exponential Antenna

The article by U. Matychenko UW4HW 'A MULTIBAND VERTICAL ANTENNA' ('Radio', 1968, No. 12, page 21) is widely distributed among radio amateurs. For reproduction of this antenna, it is not unusual for difficulties to arise in construction of the mast (it must not be entirely metallic) and the supporting isolator, being capable of sustaining significant wind loading. The UW4HW antenna, built for the 28, 21, 14 and 7 MHz bands, is free from transfer of harmonics and its input impedance on all bands is around 75 ohm.

The construction of the antenna is shown in the diagram (Fig. 1). The mast is assembled from two or three tubes of different diameter inserted one in the other. The lower section from the base to the spreaders is made of steel tube, diameter not less than 30 mm. At a distance of 10 cm from the base are attached with screws six ceramic insulators, equally spaced around the circumference of the tube. At a distance of 1.6m from the base are welded six long bolts (heads to the mast), of diameter 8-16 mm. The spreader sections are slid over the bolts and may be constructed of any metal. On the ends of the spreaders are fastened insulators with holes for the conductors. The upper part of the mast is constructed from more light tubing with a diameter of 16-20 mm at the apex. All sections must have reliable electrical continuity between them. Six radiators of copper wire, section 1.5-2 mm and isolated from the base pass through the insulators of the spreaders and attach to the apex of the mast. Feeding the antenna is achieved with 75 ohm coaxial cable. The central conductor is attached

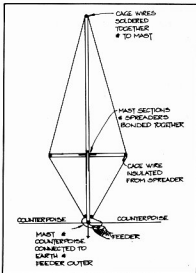


FIG. 1

to the copper ring and the shielding to the base. From the base in a horizontal direction diverge six counterpoises of length 5.6 mm. The base of the antenna must be earthed.

Measurements supplied by the designer show that the input impedance, close to 75 ohm, is preserved across the 10 metre band for about 7 MHz bandwidth, and in the 40 metre band for more than 0.5 MHz bandwidth.

The reactive component of the input impedance is the 28, 21 and 14 MHz bands is close to zero. On the 7 MHz band the reactive component increases but the antenna works perfectly satisfactorily. The SWR on frequencies from 28 to 29 MHz is in the range of 1.05-1.2 and at 29.7 MHz increases to 1.5. The designer also provided SWR figures for a frequency of 144.5 MHz, which resulted in an SWR of 1.08 for a coaxial cable length of 12-14 metres.

The antenna constructed on a flat reinforced concrete roof has low power loss and obtains good reports from DX stations.

U. Zolotariev UA6HKH.

From "Radio", No. 9, 1981, page 22.

Translation courtesy of R. Hancock VK5AFZ.

#### TECHNICAL EDITOR'S NOTE

The Technical Editor supports the note attached by the Editor of Radio, which points out the importance of the radial system for correct and efficient operation of the antenna. The Editor of Radio also requested reports of 7 MHz performance.

# Be Prepared for the 25th JOTA

Each year in October amateurs join with the scouting movement world-wide to participate in Jamboree-on-the-Air. This year, 1982, celebrates the 75th anniversary of scouting, the 125th anniversary of the birth of the founder, Lord Baden-Powell and the 25th Jamboree-on-the-Air.

Robert Baden-Powell, later to become Lord Baden-Powell of Gilwell, founded the Scouting movement so that boys of all classes could attain a wide knowledge in habits of observation, obedience, self-reliance, crafts and public services which would assist them to become good citizens. The Scouting movement has many branches — Cubs (Junior Scouts), Rovers (Senior Scouts), etc., and in 1925 the movement was extended to accommodate girls as the Girl Guide Association. Today there are more than 16 million Scouts in more than 150 countries and territories.

Since beginning in 1958, when twenty stations in ten countries participated, Jamboree-on-the-Air has expanded until it is now the largest meeting of Scouts and amateurs in the world. In 1981 approximately 250,000 Scouts from 80 countries took part.

**CONTACT A GROUP CLOSE TO YOU NOW!!!**

- DATES: 16th and 17th October, 1982.
- The various State Branch organisers and Liaison Guiders are:—

## VK1

Scouts: VK1WH, Mark Whittaker, 22 Clancy Street, Evatt, 2617.  
Guides: As for VK2.

## VK2

Scouts: VK2KUR, Eric Van de Weyer, 70 Dowling Street, Arncliffe, 2205.  
Guides: Mrs. Valda Lambert, 76 Ula Crescent, Baulkham Hills, 2153.

## VK3

Scouts: VK3TR, QTHR.  
Guides: Mrs. Bev Cuff, 5 Hamilton Street, Mont Albert, 3127.

## VK4

Scouts: Les Weller, 110 Cardiff Street, Darra, 4076.  
Guides: Mrs. Ruth Wait, 9 Stirling Street, Sunnybank Hills, 4109.

## VK5

Scouts: VK5ADD, QTHR.  
Guides: Miss Janet Simmons, C/o GGA, 278 S. Terrace, Adelaide, 5000.

## VK6

Scouts: VK6HU, QTHR.  
Guides: Mrs. June Retallick, 224 The Strand, Bedford, 6052.

## VK7

Scouts: Colin Walker, 41 South Street, Bellevue, 7018.  
Guides: VK7NRG, QTHR.

## VK8

Scouts: VK8FT, Frank Turnham, Box 38266, Winnellie, 5789.

- AUSTRALIAN SCOUT NET: 1st Sunday each month 23.30 UTC on 7.090 MHz, then at 00.11 on 21.190 MHz, 00.30 on 14.290 MHz to 02.45. Net control — VK4SAA/VK4BNL.
- SCOUT JOTA NET: 3rd Sunday each month, same frequencies/times/net control.
- JOTA opening address from VK1BP at 04.00 UTC Saturday, 16th October, on 7.090, 14.290, 21.190 MHz ± QRM by the Chief Scout, the Governor-General, from Government House, Canberra.
- Listen for VK4SAJ during JOTA, operating from the site of the 13th Australian Jamboree.

## JOTA 1981

Tasmania was well represented on the airwaves last Jamboree when the North Midlands Group of Tasmania entertained the 1st Evandale Scouts and Cubs, the 1st Ravenswood Scouts, the 1st Perth Scouts and the 1st Campbelltown/Ross Scouts for their first JOTA participation.

The station was manned by VK7OM and VK7JM, both of whom were made honorary Scouts of the 1st Evandale Scout Group in appreciation of a great time which was had by all participants and, according to Jan VK7JM, they will all be back again this time.



Enjoying JOTA 1981 are the 3rd Richmond (Vic.) Brownie Guide unit with their Leader (Brown Owl) Jeanette Rice VK3VKU. Jeanette has participated in the last two JOTAs.



For JOTA 1981 Campbelltown, Liverpool and Districts Amateur Radio Club took an amateur station, complete with two generators and antennae, including a three-element yagi on 10 metres, and operated completely portable.



Athol VK2BAD and a Scout Leader during JOTA 1981.



The Liverpool Amateur Radio Club portable JOTA shack.



Mitchell District Clubs (NSW)

Photo — VK2AMV

# Amateur Radio Licensing in Pacific Countries

R. Forrester VK3VU  
Box 600, Ballarat 3350

During a recent trip around the Pacific area on a vacation/DXpedition I was able to observe at first hand the problems of obtaining an amateur radio licence in different places. There are also other problems that I also encountered so I hope that I will be able to assist any would-be travellers with some relevant information.



## PLANNING

The trip that my friend (VK3DET) and I embarked on was designed to allow us to visit as many Pacific countries as possible without spending a fortune on air fares. Initially the trip was intended to include Wallis Is. (FW0), but there are problems with air transportation to the island, so rather than be stuck without transport it was decided to spend extra time on one of the other islands instead. There are two airlines with regular schedules around the islands and they have agents in most parts of the world. Air Pacific based in Suva, Fiji, and Air Polynesia based in Apia, Western Samoa, both offer a high standard of service and reasonable fares.

## ITINERARY

The itinerary that was eventually settled on was as follows:—

- First stop: 5W1 Western Samoa
- Second stop: ZK2 Nieu Island
- Third stop: A35 Tonga
- Fourth stop: 3D2 Fiji Islands

The total length of the trip was to be seven weeks and all equipment to be carried with us without the payment of excess baggage charges. This was to be the cheapest trip that we could arrange.

## NOW FOR A LICENCE

Having decided where we wanted to go and having worked out an approximate time frame the problem of arranging licences now arose. Having been to Tonga in 1980 and operated from there meant that I had some experience in this procedure. The first thing we did was to obtain several copies of our VK station licences and certificates of proficiency (which shows what the standard of the licence is). Each copy was signed by us as being genuine.

When this was done a list of the major items of equipment was gathered together and typed up. Several copies of this list were made also. Having all this information at hand, the time had now come to write to the authorities in each country and formally apply for a licence. With each application the following information was included.

- (a) Copy of VK licence.
- (b) Copy of certificate of proficiency.
- (c) List of equipment to be used, including serial numbers, etc.
- (d) Details of duration of stay.
- (e) Location of station whilst in the country.

Remember, you must allow at least six months for the arranging of overseas licences. With the exception of Fiji, all the authorities replied relatively quickly and indicated there would be no problem with arranging a local licence. The reply from Fiji took some time because an import permit had to be arranged with the P. and T. Department to allow us to operate our equipment. This import permit is a different permit to that issued by the Fiji Customs. It is more like a type approval certificate. Once again, a large amount of lead time is required. I will talk a little more about the customs side of things later in the article.

The Western Samoa (5W1) ticket was arranged through Graham 5W1DQ, who took our paperwork to the post office and had them issue the call signs. You have no choice of calls but rather you are issued the next one in alphabetical order. You can have your licence issued "over the counter", but it is a good idea to get it done beforehand. The fee is WS\$12.00, which is payable when you go to collect the paperwork.

The licence for Nieu was already issued for me when I arrived. You can nominate

the call if you wish or take the one they issue for you. The fees is NZ\$3.00. The manager of the Telecommunications Department was Brian Drumm ZK2BGD, and he was happy to issue a reciprocal licence provided one has at least 10 w.p.m. Morse and your home licence is not of a novice standard.



Outlook, just before dawn, from the shack of A35RF and A35TN, Tonga.

The Tongan (A35) ticket presents no problem. Simply go along to the Telephone and Telegraphs Department and produce your original home licence. They will then issue you with a receipt and the call. The



The shack of ZK2BA and ZK2BB, Nieu Island.



paperwork is usually posted to you at a later date, when it has been signed by the Prime Minister. The charge is T\$12.00.

The Fiji authorities issued the licence by mail with the payment of FJ\$10.00. You may ask for a particular call and if it is available then they will issue it to you. You must tell the P. and T. Department where the station is located and how long you will be staying. They also require details of equipment, etc. The procedure takes quite some time so it is a good idea to get started in plenty of time.



Dick VK3VU operating as 3D2RF in Fiji.

## CUSTOMS

As extra insurance, I also wrote to the Customs Department in each country indicating what I intended to do and included a declaration as the non-commercial nature of amateur radio and also attesting to the fact that I would promise to take all the gear out of the country with me when I left. This was sufficient for everywhere except Fiji, where I very nearly had to pay a deposit on the equipment, and it was only the intervention of a friend that allowed me to get on the air at all. However, if you intend to bring equipment into Fiji to operate, then be prepared to lodge a security deposit with the authorities. This will be returned to you when you arrive back in your home country. It is usually in the region of \$400 per transceiver.

It is wise to get a certificate of export from your home country also if you take gear with you. This will avoid delays and the chance of paying duty when you re-enter your country. (It is essentially proof that the equipment was in your possession when you left.) In Australia, a customs form G110 suffices. This is obtainable before your date of departure.

## EQUIPMENT

To select the equipment was a difficult task. It had to be capable of running at least 100 watts output and be able to operate into a variety of antennas. This suggested that an FT101 or similar would be appropriate. However, such a rig would be heavy and may result in excess baggage charges. Facilities for split operation were also required. The final choice was an Icom IC720A, coupled with a Kenwood AT200 antenna tuner. Ernie VK3DET decided on an Icom IC730 and a Kenwood AT120 tuner. Antennas included a Hygain 14AVQ (which proved useless) and an assortment of wire dipoles. The vertical was not successful because of the problem of obtaining an adequate earth on coral islands.

Subsequently it took up valuable luggage space and was not used at all. Ernie took along a complete OSCAR station also but met with limited success due to the best satellite passes being in the middle of the night. Icom power supplies were used to power all the equipment. No difference was noted between the switch-mode supply and the transformer type, although the switch-mode type has a weight advantage.

The transceivers and power supplies were carried on board the aircraft as "carry on" baggage and thus were not part of our weighed in luggage. By doing it this way it was possible for all the equipment to be included in our 20 kg allowance. At no stage on the trip was any excess baggage charges paid. It is a good idea, however, to explain to the check-in clerk the nature of the equipment and have him attach a label to the gear indicating it is approved as cabin baggage. This then will help you go through security without too many questions.

If anybody requires any more information then feel free to write to me via the Call Book address and I will be only too pleased to help you out. Listed are the addresses of the various government departments. In the main I found them all very helpful and willing to help me out.

## FJI

Permanent Secretary  
Posts and Telecommunications Department  
PO Box 40  
Suva, Fiji.

## WESTERN SAMOA

The Director  
Western Samoa Post Office  
Apia, Western Samoa.

## TONGA

Telephones and Telegraphs Department  
PO Box 46  
Nuku'alofa, Tonga.

## NIEU

Telecommunications Department  
Government of Nieu  
PO Box 37  
Nieu Island, South Pacific.

# Amateurs Ain't Amateurs, Sol!

To listen on the amateur band in recent times is to take a lesson in sales talk. There was a time to even mention on air the brand of valve one used was just not on. Are we slipping? Do you give a very smile when you hear the loud-mouthed gentleman on 20 say—condescendingly—"Congratulations, OM, on the rig and the signal. My rig is a Gonzo 2001, which of course is a more highly sophisticated version of yours, plus a linear final feeding a five element beam, which gives me the few wanted S points that go to make all the difference in a big contest. You've got to have it today to be in the race." What race? Is it an amateur event or a professional handicap? A sporting rivalry or a comparison of a bank balance? Hang on a tick till I put my boots on.

From Westlakes ARC Newsheet, Dec. 1981



## COMMONWEALTH GAMES STATION

All difficulties now having been resolved there will be a special station operating at the Games. The call sign used will be AX4QCG—QTC August.

## DON'T SET FRIENDS UP FOR ROBBERY

In this day and age when household robberies are plentiful, thieves use many and varied ways to discover safe places to burglarise.

All amateurs should be careful with their words whilst on air if they are to leave their words unattended for a short time. Not only should you be careful not to say that you are away but take care of your friends as well if you know they are out of town, and don't say well-intentioned, innocuous phrases like "Have a nice trip" or "Call me when you get back from your vacation", as this could be a tip-off to an alert listener and an invitation for an unwelcome visit.

## TRY THIS FOR A LULLABY

As many of you know, small harmonics sleep very soundly as long as the car is in motion, but try to stop for petrol or traffic and chances are they will awaken. One idea that works is to leave the broadcast radio on and opening the squelch on the two metre rig to a comfortable level masks the changes in the noise created by stopping, thus letting the little one continue sleeping. Be sure to choose an unused frequency or an unwanted call could spoil the whole effect.—World Radio, October 1981.

## MOTEL TYPE 2 METRES

Many amateurs when travelling will take the two metre rig out of the car and use it in the motel room. The antenna may be the classic "wire coat hanger cut to 19 inches" and soldered into a coax connector. They then expect the chances of the rig to be ground. WISHFUL THINKING!!!!

Take 19 inches of wire (and a bit more for the wrap) and attach it to the barrel connector. Now you have a whole antenna instead of half an antenna. Watch the radiation increase greatly. This should also be quite useful for those who just run a rubber duck into the antenna receptacle. Just let the added wire hang down and you will have a vertical dipole. Much better?????—World Radio, December 1981.

## COAXIAL CABLE

In TT of Rad. Comm. April 1982, Pat Hawker G3VA discusses a number of important points on the lines that RF cable should not be handled as if it were mains power cable. Ingress of moisture into any coaxial cable creates major losses, especially at VHF or UHF. High losses can also arise due to general deterioration, particularly to connectors. Naturally any kinking of coaxial cable must be avoided as well as sharp bends — a bend ratio of 5 times the cable diameter is generally considered an absolute minimum. If cable is secured too tightly with fixing staples this, too, can cause losses due to impedance changes as well as damage. Sharp bends and tight staples tend to produce standing waves and significantly increase the attenuation. Carefully solder connectors to the cable as a push-fit is likely to deteriorate later to form a "diode"; better still, use a crimping tool correctly, for connectors designed for crimping.

## UK LICENCES — POWER LEVELS, ETC.

In the UK licence as set out in recent editions of Rad. Comm. It appears that permitted powers are expressed in "dBW" as carrier power supplied to the antenna. The base level is 1W, which is 0 dBW, doubling the power results in adding 3 to the dBW figure. For example, on the HF bands (except 160 metres) G stations are permitted 20 dBW (100W) or 26 dBW for SSB.

A note 16 relating to disasters states that on the 80, 40, 30, 20, 15 and 2 metres in the event of natural disasters, non-amateur stations may use these bands to meet the needs of international emergency communications.

# HOW'S DX

Ken J. McLachlan VK3AH  
PO Box 39, Mooroolbark 3138



Early in 1981 plans were announced by Bob Read SV0BV, from his Athens QTH, that he would probably be going to CE0 San Felix with a DXpedition later in the year. As the year progressed so did the plans and the usual expedition "on again/off again" problems were mentioned from time to time. Approximately 12 months ago it was announced that it was a "goer" and up to ten operators were going to participate. Shortly after this announcement Bob stated that he would be going alone because of licence difficulties and security clearances, as his Company had a contract to carry out a survey on the electronic equipment on the Island, which is under the control of the Chilean Navy.

Promises were made that he would check into the ANZA Net on 21 MHz without fail, when he was there, as the licence only allowed 48 hours operation from San Felix Island, so of course everyone within hearing distance that heard about it, from a friend who told a friend, including myself, concentrated on 21.204 MHz on Saturday, 17th October. He had been heard and worked by VKs the previous evening on 14.195 MHz and some of the multitude that gathered on the net frequency intimated that he was presently active on 14 MHz, where propagation was poor and he was barely readable and a few optimistically forecast that he could be shortly on the 21 MHz net frequency. Everyone on frequency was savouring the thought of a new and extremely rare country being within their grasp.

Of course he didn't appear on the ANZA Net, so transceiver dial mechanisms and band switches were given a reliability test in the ensuing hours in efforts to even hear and maybe get a report before the "pile ups" started and the licence expired. Some DXers formed groups and phone numbers were freely exchanged to give a greater scan of the spectrum, anyone using the family phone for more than 10 seconds got an icy stare from the station licensee and meals were partaken of at the operating position.

The following week news spread that "it" was over and Bob Read was back in the States as he had to leave suddenly after making about 800 contacts. An ensuing QSO with the operator using his SV prefix intimated that the operation had been very "dicey" and he had been told to leave by the Commandant of the Naval Force on San Felix.

Little more was thought about the events of that weekend and the ensuing QSO with the operator, until considerable correspondence in both Spanish and English was received at this QTH from Patricio Fernan-

dez CE3GN, the International Relations Director of the Radio Club de Chile. This correspondence revealed the truth regarding this clandestine operation.

The perpetration of this hoax, as claimed and backed up by copies of official documentation from the Chilean Society is ably captured in the cartoon that graced the front cover of the Society's monthly magazine with a feature article entitled "The Mockery of the St. Felix Island DXpedition". The cartoon is reproduced in these notes, with the copy of the licence as received.

The lengthy magazine article, which was professionally and kindly interpreted by Louis VK3ZLD, lays out the facts that surround this fiasco which has incited the Chilean Society to speak out on behalf of, particularly their members, and the amateur fraternity as a whole.

The salient points of all the correspondence in both Spanish and English that transpired over this unfortunate incident are set out that you may know all the facts:—

- ☆ Robert Marshall Read had been in Chile.
- ☆ Robert Read was granted a licence WB1GDDQ/CE3 under a Reciprocal Agreement existing between the USA and Chile.

- ☆ He was authorised to operate WB1GDDQ/CE3 by the Chilean Authorities from an application submitted in August 1981.
- ☆ No contract existed between the Chilean Government, Navy or anyone else regarding work for his Company or himself on San Felix.
- ☆ He never put a foot on San Felix Island.
- ☆ When confronted by the ARRL as to the validity of his KF10/CE0X operations, he produced copies of "authentic" documents marked TOP SECRET to validate his claims.
- ☆ Patricio CE3GN flew to the States to discuss the matter with the ARRL. Patricio proved that five letters and documents were falsified, which included "phantom" signatures, an altered CE3 licence, certificates from non-existent Chilean organisations and altered documents from Government sources.
- ☆ The WIA and the ARRL have both disallowed this operation as a DXCC credit.
- ☆ According to copies of correspondence that transpired between



C/100 22501 Stria. Graf.  
 RADIO AMATEUR PLUNISSON  
 8 De Junio de 1981

Solicitud de Licencia de Radios Amateurs  
 80 20 N 3 43

VISTO EL SUPLENTE DE LA LEY GENERAL DE TELECOMUNICACIONES Y EL  
 REGLAMENTO DEL PRONTO DE APROBACION AUTOMATICA Y VISTO LOS FORMULARIOS  
 PARA SOLICITAR UNA LICENCIA DE RADIOAMATEUR  
 EN LA SIGUIENTE DIRECCION: PRONTO DE LOS COMIS.

ENVIAR: 1. Formulario de solicitud. 2. Formulario de datos personales. 3. Formulario de datos de la estación. 4. Formulario de datos de la licencia. 5. Formulario de datos de la estación. 6. Formulario de datos de la licencia. 7. Formulario de datos de la estación. 8. Formulario de datos de la licencia. 9. Formulario de datos de la estación. 10. Formulario de datos de la licencia.

DIRECCION GENERAL DE TELECOMUNICACIONES  
 Santiago Chile

FALSE

The licence in question. (Circled notations have been made by Chilean officials.)

the Chilean Society and the ARRL, the same person was sought for alleged fraud involving some non-amateur business transactions.

☆ The Chilean Society in a letter to the FCC have asked for the cancellation of his American licence as, quote, "we think that he quite clearly demonstrated that he has no right to belong any more to the Radio Amateur Fraternity".

The ironical part of this farce is that, whilst half the DXers in VK and ZL were waiting for the "new Country" to appear on the ANZA Net, Pat CE3GN, with an audience of thousands, was explaining to the station purporting to be on, San Felix Island, that according to the information he had at hand in Chile, "no one could be transmitting from the Island and to his belief the whole operation was a mockery and a discredit to CE". The call sign went QRT from whatever QTH he was using and was not heard of again.

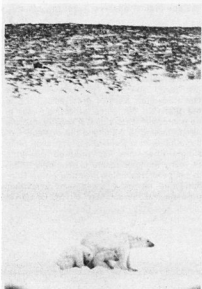
You, the reader of this column, can draw your own conclusions from the information above, but personal views for what they are worth is that the embarrassment caused to the Chilean amateurs and amateurs world-wide is something we could do without. Some reader who has an interest in psychology may be able to establish the thought behind the planning and perpetration of this psychological act which has frustrated thousands of DXers and given good "mileage" to many in spreading unnecessary rumours.

Perhaps the magnification of the microscope that all DXCC cards and operations are subjected to will be dramatically increased after this sojourn.

To a brighter note, whilst still on the subject of San Felix. Even after all these problems over the last few months THERE will be an expedition to San Felix by the Chilean Society in the near future.

**JAN MAYEN**  
 Rag JX7FD has returned home to LA-land after his usual stint in the area. It is be-

lieved that the active stations on Jan Mayen for the near future will be JX4GN and JX5EEA. These stations should be active as our summer approaches.



Some typical visitors Rag entertains during his trips around the Arctic.

**QRP**  
 QRP operators can be found any hour of the day or night on authorised amateur frequencies. Some use solar cells, others dry cell batteries and quite a few use the mains as the basic power source. For those wishing to listen for and chat to this ever growing group, the internationally recognised frequencies are listed for your convenience.

CW: 3.540, 7.040, 14.060, 21.060, 28.060 MHz.

SSB: 3.585, 7.185, 14.284, 21.385, 28.885 MHz.

**TOGO ACTIVE**  
 Ted 5V7HL is around for the occasional

QSO. Ted and his XYL, Laura, are engaged in missionary work in the country and it is only occasionally that QSOs can be fitted in during the day's duties. QSLs are 100 per cent, if you are lucky enough to catch a quick report/exchange. QSL to Rev. Ted Schultz, BP 8062 — Tokon Lome, TOGO, West Africa.

**E17CW**

Clair E17CW, frequently heard on 20 metres, describes herself as a newcomer to the hobby. Clair operated firstly in 1972 as VP2LAP and on gaining her EI licence in 1975 has operated with the OM Ken EI9AB, using different rigs. The present set-up is a Drake TR4C, KW2000B linear, a trap dipole for the low bands and a TA33 JNR for 20, 15 and 10 metres complete the HF set-up.

Clair's main interest is "rag chewing", yet it is known that she does check into a couple of the YL nets on a fairly regular basis and she admits that she hasn't got caught up in the "pasteboard" warfare, although a few cards are proudly displayed and one award in particular takes pride of place, that being the Tasmanian Devil Award.

Clair is one of 15 YLs presently licensed in the Republic of Ireland and recalls that, when she came on the air in 1975, she was much sought after as she was the only EI YL active at that time and, together with the OM Ken, were the first OM-YL team in EI.

Other hobbies which are pursued are playing Bridge, collecting stamps and in the summer both Ken and Clair enjoy sailing, both being members of the Crosshaven Royal Yacht Club, in Cork, which is the oldest yacht club in the world.



Clair E17CW

**SENEGAMBIA**

Still no clarification on what is going to happen with regards the amalgamation of 6W8 and C53. Both prefixes are currently being used. Next year it is tipped to be the year for lopping off a few of the countries on the current DXCC list and whisperings are that Spratly also will be one of the current countries that will be placed under very close scrutiny.

# Heard Island Update

from notes supplied by Nick VK6XI

Amateurs the world over have a distinct tendency to take for granted the rare, isolated and at time desolate locations that appear on their "most wanted countries" list. This apathy has been further exacerbated by the so-called DXpeditions that simply involve a commercial airline ticket, hotel booking and convenient power outlet. Even those expeditions involve hardship and danger and are normally of so short a duration that the planning, victualing, etc., are really of secondary importance.

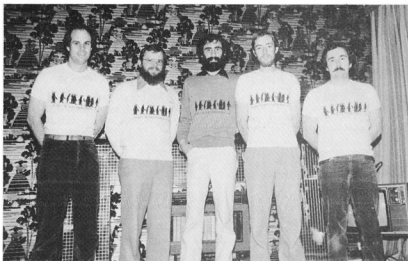
Our destination, however presents one of the most daunting challenges imaginable. It is impossible to fly there, hence transportation is, by necessity, nautical, however sheer economics prevent any thought of powered vessel usage, hence the decision to utilise a "maxi" yacht — "ANACONDA II".

There are, of course, considerable limitations that accompany such modes of transport, the most obvious one being cargo space — perhaps a question can be posed at this time — Consider, how heavy was your shopping trolley the last time you bulldozed round the local supermarket, with just one week's shopping for four people? How about multiplying that by four — the party will consist of 16 members, then try to visualise 12 weeks worth of groceries — that's a whole pile of food and it doesn't take into account the butcher, baker, milkman and the trips down to the neighbourhood general store for the bits and pieces you forgot. The expedition cannot afford to forget even the smallest item as the nearest shop to Heard would probably be in South Africa and the quickest in excess of 12 days hard sailing to Bunbury, Western Australia.

Even using modern, vitamin retaining, frozen dried foodstuffs, the quantities required are somewhat frightening — almost 2 tonnes. The food intake has to be adjusted due to the cold weather which will be experienced, and it is not just a minor adjustment but almost twice the daily caloric intake to the average person here in VK.

Forgetting the food, the next thing is special protective clothing, necessarily bulky due to the climatic conditions, which eats away at the available space and then, of course, the ever important radio gear and generating equipment has to be catered for. That was thought to be the easy part but the latter caused quite a headache. Most surprising was the fact that a 1 kV petrol driven unit chews virtually the same quantity of fuel per hour as a diesel unit with three times the supply capability, also diesels don't worry very much about driving rain and sleet, etc., whereas a petrol unit requires absolute protection from water ingress into the electrical system.

Fuel is therefore obviously diesel, but for ease of transportation, only small drums



Next stop Heard Island for, (l. to r.) Alistair McGregor, expedition artist and environmental study co-ordinator; Dr. Ross Vining, chairman and co-leader of expedition, mountaineer and scientific study co-ordinator; William Blunt, convenor and co-leader, mountaineer; Martin Hendy, mountaineer and glaciologist; and Dave Shaw VK3DHF, DX operator and meteorological observer, showing off the expeditions tee shirts at a recent get-together in Melbourne.

can be considered (one can't exactly man-handle a 44 gallon drum in rough weather, let alone get it through heavy surf to the beach head without risk to life and limb).

What about radio equipment? Obviously the huge advances in technology and miniaturisation were of great assistance to the planning but some problems need to be overcome. Antennas will require specific strengthening to withstand the onslaught of continuous gale force winds and even plain simple three-core flex required research, as many makes become exceedingly brittle at temperatures below freezing point. Condensation on radio equipment is another problem and the solution — THE OPERAT-



Practising landing with inflatable rubber boats

HIE Photo '82



ANARE Heard Island Base Station in snow.

G. Budd 1964. Photo: Courtesy of ANARE

ING POSITIONS WILL COME COMPLETE WITH ELECTRIC BLANKETS. The provision of the blankets is not for the operator's comfort (although their knees and elbows should be nice and warm), but to ensure damp problems are kept to a minimum. Pens and paper have been considered and experimented with, some writing implements just do not work when cold or the ink runs if the paper gets wet. Such items must be considered when regular precipitation and a hazardous sea landing are involved.

Well, we hope the foregoing has whet your appetite and enlightened you on the extent of thought, planning, experimentation and leg work going into the radio equipment component of the expedition. Perhaps you will now offer your help, as donations are urgently required and all will be acknowledged or perhaps you work for a company that may be able to assist with something which is needed for the trip — food, clothing, equipment, fuel, you name it, it is required. With an amateur population of some 15,000 in Australia everyone must know someone who may be able to assist, so how about relieving some of the burden and drop the group a line if you think you can help.

Donations and assistance given will be published monthly. Will your name appear soon to help HEARD being HEARD in 1983?

Pledges and donations received as at 23rd July, 1982, which is listed in alphabetical order:—

<b>PLEDGES:</b>	
CDDA	Can\$ 1,000.00
IDXF	US\$10,000.00
NCDXA	US\$10,000.00
Virginia Century Club	US\$ 100.00
<b>DONATIONS:</b>	
John J. Johnson (Maryland, USA)	\$ 10.00
J. Dean Paterson (KH60A)	\$ 25.00
K4UEE	\$ 20.00
Eric Trebilcock L30042/BCRS195	\$ 50.00
VK5ANW	\$ 15.00
VK8IW	\$ 100.00
VK6FS	\$ 10.00
VK6ACP	\$ 10.00
VK6NEB	\$161.00
W.I.A. VK5 DIVISION	\$100.00
W.I.A. VK6 DIVISION	\$500.00

**SPECIFIC PURPOSE DONATIONS:**  
For the purchase of Amateur Radio Equipment in the activation of Heard Island by VK0HI, CW and MD.

W.I.A. VK6 DIVISION \$1500.00



Commercial equipment installed at Heard after the return of the Pioneer Expedition in February 1949.

ANARE Photo Courtesy VK3YL

**BY ACTIVITY**  
Still active on both 15 and 20 metres CW. Cards are being returned very promptly and QSOs not in the log due to the "phantom" operations of other "BY1PKs" are receiving courteous notes with a suitably endorsed BY1PK card. Many DX Managers and operators could follow the diplomacy and learn from our new amateur friends.

**ALAND ISLAND**  
QSLs for G4JVG/OH0, which was activated last month, go to G4JVG QTHR or via the RSGB. Lynn ex KA6YL and DA1GR, who has operated from the island and other prime DX location on many occasions with the OM Bob ex KA6RI and DA1GR have finished their tour of duty in Berlin and have returned home to the States. Lynn will be signing her home call WB6BRW and will be heard above 14.175 MHz when the bands are open.

**AX LORD HOWE**  
Prefix hunters will be happy to know that Lord Howe Island will be activated from the 30th September until the 8th October by AX3DHT/LH, who proposes using all bands 80 through 10 metres, with possibly some 6 metre activity. The QSL route is PO Box 304, Ringwood, Victoria 3134.

**PACIFIC DX JAUNT**  
Ernie VK3DET is going back to the Pacific area for another DX tour. The schedule is 12th October, two days signing 3D2TN, then on to Tonga where Ernie will sign A35TN for a period of six to eight weeks. Next stop 5W1DW for one week before a one week operation in American Samoa, probably operating VK3DET/KH8. The KH8 phone operation will be restricted to the American portion of the bands.

Ernie will be mainly looking to give VKs and ZLs a contact but allcomers will be welcome. All nets will be catered for as time permits and special emphasis will be placed on operating in the Novice section of the bands. All QSLs 100 per cent via Dick VK3VU, PO Box 600, Ballarat 3350.

Good DXing and an enjoyable trip, Ernie, and thanks from all the much forgotten Novice operators for considering their needs.

**THANKS**  
Information for these notes has been derived from magazines including cqdX, DX BULLETIN, RADCOM, CQ14W, NEW LETTERS, CABALLEROS DEL AIRE, WORLD RADIO and amateurs DJSD2, G3NRC, ON5NT, WA3UP, VK3UX, YL PBA, 4AIF, 6HD, XI, NE, YL, XI and L30042.

Thanks to one and all but more reports and information are required. Can you contribute, please?  
Good DXing and 73.

**QSL ROUTES:**  
A4XIU (G4GRI), A6XJA (PA0LP), EL8H (SM7FIG), HC8GI (W3HNK), HV2VO (IO6PY), OJ0AM (OH2BAD), ST2SS (YU2DX), TL5CK (F6EWM), TL8DC (F6EWM), ZD8BY (W4FRU), ZD9YL (W4FRU), ZY3YX (PY3AA), 4N7ARG (YU7AJW), 5M9FR (DF2VA), 6VBAR (DJ3AS), 6WHL (W4VDE), 9Q5GD (DL8IL), NOTE: Managers shown in brackets.

**QTHs YOU MAY NEED:**  
A92Z, PO Box 26855, Bahrain.  
F7YAN, PO Box 746, Cayenne.  
SV5FO, PO Box 348, Rhodes.  
400DBT, PO Box 299, Manila.  
5H3DM, PO Box 9112, Dar es Salaam.  
5Z4CX, PO Box 90661, Mombassa.

**SSB WORKED ON THE EAST COAST**

20 METRES  
435TA, 4X4FB, 6W8AR, A35WH, CT1LS, C72AK, CT2CE, E17AJ, FBWVG, HB8ACP, XT2AU, Y11BGD, ZB2GW, ZL3PA/C.

15 METRES  
3D2CS, 3D2DB, 4D1FJS, 4X2DF, 5W1EL, 707LW, 9H1FQ, 9H1GR, 9H1GT, 9M4FR, 9U5JM, 9V1TL, A35WH, A4XHZ, EA8OZ, FR0FLO, HA44OB, HC1RE, HG5A, KA6NLF/KH0, P25BS, 583W, T19VR, YK0VY, YK2ZA, VP9JY, VO9CJ, VO9PG, VO9SS

10 METRES  
5H3DM, 5Z4CM, A35WM, EP2TY, F68WG, F8BYJ, KA6NLF/KH0, P25BS, VK9NY, V55GA, XE1FT, YJ8MP, Z21GL, ZK2WM.

**CW WORKED ON THE EAST COAST**

20 METRES  
ZC4YC.

**CW WORKED ON THE WEST COAST**

20 METRES  
4U1UN.

15 METRES  
CR9T, XZ9A.

40 METRES  
3B9CD, BY1PK (hopefully the real McCoy at last), DL4TA/HB0, NSRM/NH0, OH2DP/OH0, VO9XX.

80 METRES  
3D2DX, GM3PQ, UA6ZCJ, UM8PA, VO9XX.

**SSB WORKED ON THE WEST COAST**

10 METRES  
5H3DM, 5NRTF, 9K2BE, 9U5JM, F8BYJ, TR8RS, UK2FAA, VO9IB, ZL4PO/C.

15 METRES  
4XBH, 707LW, 9U5JM, A71AD, A82BW, EA8PY (YL), FBWVG, IOCCD/IGR, DJ1ASZ, SV5FD, VO9SB.

20 METRES  
COTAM, FQCH/FC, FH4CL, FY7BB, H5C8B, J6LIH, J73PD, J88AR, K5YV/J8, U2PEF, V2AU, XZ9A.

40 METRES  
A35WH, JH1HF/JD1, VP2VD, YS9RE.

80 METRES  
807BN, HS1AHM.

**CW LISTENING WITH ERIC L30042**

10 METRES  
JA7CH, KH6AT, NSRM/NH0, UK5MAG, UK5LAA, UK7PAL, VK6YA, WA6KFX, ZK2KH, ZL1BK, ZL2AUM, ZL4KI.

15 METRES  
4Z4DX, 9V1OK, EA5BZM, EL0AV/MM (Bahamas), KFOAF, FK8EH, FOBAZ, IS0AGP, KA1CB, KH6GI, NSRM/NH0, NP4BU, VK6NAI, YC0VM, YV5AE, Z5MY.

20 METRES  
3D2HG, 9M2FR, 9V1TL, CT1LN, DL1DO, DU6JM, FK8BU, FM7CF (XYL), FO0TM, H18LC, HL2HN, HT1JCC, KB6XB, LU9CV, NPM4M, OK1XJ, RBL, T30AT, T32AJ, VE1SPI, VO9PG, XE2ALZ, XZ9A, Y73L.

30 METRES  
C01HD, DL2QG/YV5, DL6NB, EA6KW, F6ARC, G3RFE, GJ3EM, GM3DJR, GW3ARS, HB8CBI, I5YT, JR8PU, KM2XDU, OE5BOL, OI29X, PA3BTH, VE1ASJ/1 (St. Paul Island), VE1SPI, VE3LUG.

40 METRES  
3D2OX, A35WH, CM2VG, EA7DS, F6FJI, FO8GM, G2CSN, G13QOR, HA1XW, HJ3JF, HK1MY, I3WH0, J73D, K5YV/J8, K5YV/J8, KP4EC, KV4AA, LU6DJ, LZ1KOP, NZ0Z/DU2, NSRM/NH0, OK1JCV, PY1MAG, S5AQB, T30AT, T32AF, UA2FCB, UA6PAA, UD6CN, UFEFFX, UP2BJM, UQ2FSM, VK9NS, VP2MIX, VP9BO, Y3XDO, YC0VA, YOTBI, YU4EL, ZK2KH.

80 METRES  
G5RI, SM7ALC, UQ2BCR, UK3SAB, UK5IBB, UK5MAG, UK5WHV.



**THINK!!!**

if you have good colour photographs suitable for front cover PLEASE loan them to AR.



## YAESU FT-102 HF ALL MODE TRANSCEIVER

### IF Transmit Monitor

An extra product detector allows audio monitoring of the transmitter IF signal, which enables precise setting of the speech processor and transmit audio so that the operator knows exactly what signal is being put on the air in all modes. A new 'peak hold' system is incorporated into the ALC metering circuit to further take the guess-work out of transmitter adjustment.

### New VFO Design

Using a new IC module developed especially for Yaesu, the VFO exhibits exceptional stability under all operating conditions. The circuit design is extremely simple, using only axial-lead components.

### Better Dynamic Range

The extra high-level receiver front end uses 24 VDC for both RF amplifier and mixer circuits, allowing an extremely wide dynamic range for solid copy of the weak signals. For ultra clear copy on strong signals or noisy bands the high voltage JFET RF amplifier can be simply bypassed via a front panel switch, boosting dynamic range beyond 100 dB. A PLL system using six narrow band VCOs provides exceptionally clean local signals on all bands for both transmit and receive.

### Total IF Flexibility

An extremely versatile IF Shift/Width system, using a totally unique circuit design, gives an infinite choice of bandwidths between 2.7 kHz and 500 Hz, which can be tuned across the signal to the portion that provides the best copy sans QRM. A wide variety of crystal filters for fixed IF bandwidths are also available as options for both parallel and cascaded configurations. The 455 kHz third IF also allows an extremely effective IF notch tunable across the selected pass band to remove

interfering carriers, while an independent audio peak filter can also be activated for CW reception.

### New Noise Blanker

The new noise blanker design enables front panel control of the blanking rules width, substantially increasing the number of types of noise interference that can be blanked, and vastly improving the utility of the noise blanker for all types of operation, including woodpecker blanking.

### Transmitter Audio Tailoring

The microphone amplifier circuit incorporates a tunable audio network which can be adjusted by the operator to tailor the transmitter response to his individual voice characteristic before the signal is applied to the superb internal RF speech processor.

### New Standard of Purity

Three 6146B final tubes in a specially configured circuit provide a freedom from IMD products and an overall purity of emission unattainable in two-tube and transistor designs, while a new DC fan motor gives whisper-quiet cooling as a standard feature.

### FV-102DM Synthesized, Scanning External VFO

The FV-102DM provides the FT-102 with the advanced frequency control necessary for optimum operating convenience where seconds count. The PLL synthesizer steps at a 10 Hz rate, while slow or fast scanning can be controlled either from the push buttons on the front panel or directly from the microphone connected to the FT-102 (when a scanning microphone is used). Up to twelve frequencies can be memorized by the FV-102DM, entered from the FT-102, FV-102DM VFO or from the front panel numerical keyboard. Additional front panel controls include plus-and-minus 5 kHz and plus-and-

minus 20 kHz stepping buttons; VFO dial lock, last digit blanking, and transmit/receive Main/VFO memory selector buttons to allow any combination of frequency controls. The VFO dial can also be activated as a clarifier for a selected memory, while the five digit fluorescent display shows the operating frequency with resolution to 10 Hz, if desired.

### FC-102 Antenna Coupler

The FC-102 is a newly designed antenna tuner. With a power handling capability of 1.2 kW, the bandswitched L-C pi-network will match a wide variety of antennas (including a single wire) to your transceiver or linear amplifier on all HF bands. New design features include an in-line wattmeter with three ranges (20, 200 and 1200 watts full scale), and a 'peak hold' system that enables the operator to observe peak power. A separate SWR meter is also built in for antenna tuning indication. The FC-102 includes internal relays to provide low-loss push button selection of two different antennas (and two transmitters), while the optional FAS-1-4R Remote Antenna Selector may be mounted either inside the FC-102 or right on your tower, to allow selection of four additional antennas. When remotely installed, the FAS-1-4R is connected by a control line to the FC-102, eliminating the need for costly multiple feedlines.

### SP-102 External Speaker/Audio Filter

The SP-102 features a large (120 mm) high-fidelity speaker with selectable low-and-high-cut audio filters allowing twelve possible response curves. Headphones may also be connected to the SP-102 to take advantage of the filtering feature.

### SP-102P External Speaker/Phone Patch

The SP-102P provides a combination shaped response speaker and hybrid phone patch for simple interfacing. Gain controls and an audio level meter are included on the SP-102P.



**BAIL ELECTRONIC SERVICES**  
38 FAITHFUL STREET, WANGARATTA 3677  
Telephone: (057) 21 6260 — Telex: 56880



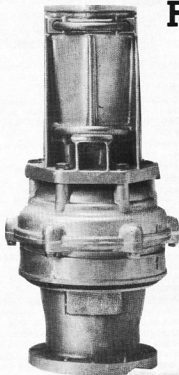
Stan Roberts  
VK3BSR

# bail



## EMOTATOR ROTATORS FROM BAIL

**SAX MODELS  
HAVE GREAT  
CIRCLE MAP  
CENTRED  
ON  
S.E. AUSTRALIA**



**103SAX**



**502SAX**



**1102MXX  
1103MXX**



Controller for  
1102MSAX, 1103MSAX

**CONTACT THE AUSTRALIAN  
AGENTS FOR EMOTATORS  
AND ALL ROTATOR  
ACCESSORIES . . .**

Model	A M <sup>2</sup>	GD <sup>2</sup> Kg M <sup>2</sup>	Braking Torque Kg Cm	Rotation Torque Kg Cm	Vertical Load Kg
103SAX	0.7	75	1500	450	150
502SAX	1.5	130	4000	600	400
1102MXX MSAX	2.5	300	10 000	800	400
1103MXX MSAX	2.5	700	10 000	1000	400

A: Allowable Antenna wind area  
GD<sup>2</sup>: Allowable Flywheel effect

# bail

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**38 FAITHFUL STREET, WANGARATTA 3677**  
Telephone: (057) 21 6260 — Telex: 56880



Stan Roberts  
VK3BSR





# COMMERCIAL KINKS

## CONSTANT CURRENT CHARGING FOR THE ICOM IC-2A

By Paul Newland ZL2TVV

The do's and don'ts of charging nickel-cadmium cells (nicads) is a subject that we have all discussed at one time or another. One fact that is made clear by most of the "experts" is that a constant current charge is desirable. Small nicads should be charged at their 10-hour rate for 15 hours. For example, the charging current for a 250 mA cell, as used in the Icom IC-BP3 battery pack, should be one-tenth of 250; that is, 25 mA.

The Icom IC-2A instruction manual recommends the use of the BC-25U/E wall charger or a stable 13.8V DC source for charging the IC-BP3 battery pack.

With a 13.8V DC input the initial charging current, assuming the battery voltage to be 6V, is about 80 mA. At the rated battery voltage of 8.4V, the charging current falls to about 53 mA. When the batteries have reached their maximum voltage (about 10.4V on charge), the charging current is about 31 mA. For the same battery voltage range the charging current may be anywhere between 11 mA and 93 mA for an input voltage range of 12V to 15V. Charging current from the BC-25 U/E wall charger varies between 40 mA and 20 mA as the cells are charged from 6V to 10.4V. These figures suggest that the nicads are not being ideally treated, especially when being charged from an external DC source such as car battery.

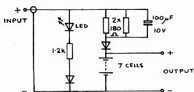


FIG. 1: IC-BP3 battery pack Circuit

The charging current is limited by the two parallel 180-ohm resistors and the diode in series with the cells. This is a far from ideal charging circuit when we consider the small voltage differential between the charging source and the battery voltage. Small variations in charging voltage, or battery voltage, cause relatively large changes in the charging current.

This circuit charges the cells at a constant 25 mA over the same 12V to 15V input range, regardless of the cells state of charge.

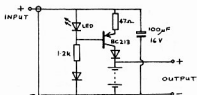


FIG. 2: Modified circuit of IC-BP3 battery pack to give constant charging current

The circuit works as follows:—

Current through the light-emitting-diode causes a voltage drop of about 1.8V across it. This voltage is independent of the input voltage to the charger and is used as a reference voltage for the base of the transistor. The forward voltage drop of the base-emitter junction is about 0.6V, so this leaves a constant 1.2V across the 47-ohm resistor.

Charging current, determined by the voltage across the resistor, flows through the transistor and the diode to the cells. This charging current is:—

$$I = V/R = 1.2/47 = 25 \text{ mA}$$

To modify the battery pack, remove the two screws from the bottom of the pack and the two screws from the same half at the top. Separate the two halves. Remove the cells, being careful not to short them!

Remove the two 180-ohm resistors and the 100 μF electrolytic capacitor from the PC board.

Mount a 47-ohm resistor on the component side of the PC board with one lead soldered into one of the vacant holes in the copper strip from the positive input terminal. The other end of the resistor passes between the board and the cells to the emitter of a BC213 or a similar PNP transistor. The base and collector leads are soldered to the appropriate points on the copper side of the board. The resistor lead should be sleeved to avoid contact with the other parts.

Solder a 100 μF 16V electrolytic capacitor between the negative contact plate and the positive strip on the copper side of the board. Fig. 3 shows the new components in position. Check your wiring and replace the cells.

To test the operation of the circuit, connect the wall charger (or a DC supply) to

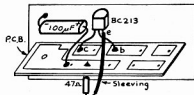


FIG. 3: Diagram showing location of additional components

the input and measure the voltage across the 47-ohm resistor. A voltage of 1.2V, plus or minus a few percent, indicates that all is well. Note that the total current from the supply will be about 35 mA because the LED circuit takes about 10 mA.

After carefully re-assembling the case, your new constant current charging circuit is ready for use. To get maximum capacity and long life from your battery pack, charge it only when the cells have been fully exhausted and remember to stop charging after 15 hours.

This article first appeared in Break-In Jan.-Feb. 1982

## REMEMBER



CALL  
BOOK  
DATA

The Editor is aware that there are still a small number of errors, duplications and omissions as well as uncorrected addresses in the current edition.

The data in the Call Book is only as accurate and complete as the information supplied to the Institute.

PLEASE tell us about any errors, etc., and please tell your amateur friends to tell us too. Write to —

**WIA**

**Box 150, Toorak, Vic. 3142**



## THUMBNAIL SKETCHES



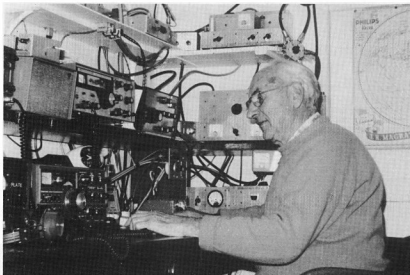
### HAROLD HOBLER, ex 4DO 1923, VK4DO (Life member of WIA)

Harold was born in 1906 and became interested in radio before the age of 17.

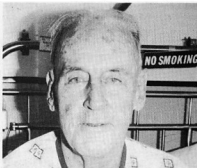
Would any other amateur in Australia have such a long and active career in amateur radio as Harold?

Harold was first licensed in March 1923 as 4DO, but like many others was active before then. AOCIP certificate 110. Wavelength was 240 metres and power 10 watts.

Since 1923 Harold has achieved a record far too long to show here but includes contest wins, many rewards for service to amateur radio, including Life Membership of the Queensland Division, WIA, operating certificates, etc. Refer AR January 1981. "VK4DO—57 years a radio amateur." The photo was taken when Harold was in a Brisbane hospital recently before he returned home to Rockhampton, where we wish him continued speedy recovery.



Col in his operating position. Col has a present DXCC Countries list confirmed of OPEN — 312/344, PHONE — 310/328 and CW — 266/296.



Harold VK4DO

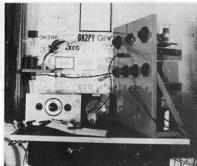
### COL WRIGHT VK7LZ (Life Member of WIA)

Col's AMATEUR OPERATOR'S CERTIFICATE OF PROFICIENCY IN RADIO TELEGRAPHY is dated 9th March, 1933, and is No. 1099. He joined the Tasmanian branch of the WIA in the same year and has been distributing QSLs to the Northern Branch members ever since.

When Col was licensed the authorised power was 25 watts (Col is still wondering if it was in or out) and his first transmitter was a 245 valve in a Hartley oscillator circuit with 300 volts on the plate.

Col used many types of receivers, among them a PL 34, which used 4 volt valves and was a RF detector with two stages of audio and also a two valve regenerative receiver from QST 1934 (a copy of which he still has).

During World War II, Col served in the RAAF and upon discharge decided not to come back to the amateur bands, but he was not reckoning on the persuasive powers of the late Crosby Walsh VK7CW.



This photograph shows a superhet receiver which was described in a 1936 Radio Handbook which was built and used by Col until 1939. Also shown is a transmitter which used two 53s, a 6L6 and a 210 final.

Crosby gave the encouragement needed and Col has not been off the air since, on all bands from 1.8 MHz to 432 MHz.

In the days before repeaters, when contacts from Tasmania to the mainland on 432 were DX, Col made the first VK3/VK7 direct contact with VK3AEE using a 64 element beam. Quite a feat.

Col is still very active with his interests mainly guided toward satellites and DX (both CW and SSB), using a TS520S, homebrew linear and a TH3.

## Region 3 Conference Manila 1982



Australia's representatives at the Conference table: David VK3ADW and Peter VK3KAU. See AR, June, page 16.

**HAVE YOU CHECKED  
YOUR CALL-SIGN  
IS CORRECT  
ON YOUR  
AR ADDRESS LABEL?**

# POUNDING BRASS

Marshall Emm (VK2DXP)  
PO Box 362, Goulburn, NSW 2580

## THE CW QSO

### PART 1 — ESTABLISHING CONTACT

Establishing a contact on CW is basically no different from phone operation. There are only limited ways to do it — One can call "on sked"; one can make or answer a CQ call; one can tail-end a QSO in progress. The first option is mentioned just for the record, but as on phone, there is an art to making or answering CQ calls on CW.

and try to determine whose frequency it is. The trick is to be sure to wait long enough not to interfere, but to get in before the other guy QSYs or goes QRT.

Probably the least understood of all procedural forms are CT and AR. On balance CT is probably over-used and AR misused. CT is generally understood to be "the commencing signal", but there are only two places it really needs to be used — in the DOC Morse Code examinations, and in formal message traffic. It really has no place in the ordinary QSO, and its use before a CQ call is superfluous. It means one is about to send some sort of information, but if a receiving station has copied the CT he has already begun to copy information. So why use it at all in a QSO?

AR is generally understood to mean "finishing signal", but it has a more strictly defined meaning as "End of Message". There is no consistent pattern in its usage. It can be used after a CQ call as an invitation to any other station to transmit, and in that case does not need to be followed by K. Of course it goes without saying that CQs are very often followed by AR K. AR does not have to be used at the end of

each over. Some ops. put it before the call signs, some after. But if it is used after the call signs it is again a non-specific invitation to transmit, and if it is followed by KN (named station only to transmit) then you have a contradiction. I generally follow the Japanese style and put AR BEFORE the call signs to indicate the end of the actual message as opposed to station identification.

And now for a word about speed. The Golden Rule is: Call at the speed you want to work; answer at the speed of the other station. If everybody does this, you will never ask or be asked QRS (that's the theory).

If you have absorbed the above, you should have no trouble establishing contact. Think it over, and if the above procedures make sense to you, use them and don't worry about the other guy's sloppy procedure. Next month we will get into the "heart" of the QSO; till then 73 ES CUL.

When listening, tune back and forth across your sending frequency with the RIT (NOT VFO) — the other station may be outside your pass-band.



If you are calling CQ, the traditional three by three call is your basic tool. Calls can be longer or shorter, depending on band conditions and your expectations of getting an answer. For example, if the band is empty, extending your call increases the odds of someone hearing you. On the other hand, if you have heard someone tuning up or the frequency has just become vacant, a one by one call may be adequate. If you are using a suffix, such as "/QRP", it severely lengthens the identification portion of the call and it doesn't hurt to stick one more CQ in before AR, e.g. "CQ CQ CQ DE VK2DXP/QRP (three times) CQ AR". This is done so that a station picking you up during your identification doesn't have to wait for your next call to know that you are in fact calling CQ.

If you are answering a CQ, you need only send the other station's call once, or at most twice, because the odds are he knows it fairly well. Send your own call at least twice (depending on conditions) and conclude with KN (more about the procedural symbols, or prosigns, later). Keep in mind that you don't even know if he can copy you at all yet, and you may be S2 to him even though he's just blown your front-end!

In tail-ending it is important to observe the same rules as on phone — be sure the channel is clear (in other words the stations must be finished, not finishing).



## Communication

D. J. Button VK3VNL  
2813 Christopher Court, Loch Sport 3851

Nothing doing on fifteen  
And nothing doing on ten  
As I roamed around the different bands  
In my hand I held a pen

I arrived on eighty metres  
On three point five six o  
To hear a conversation  
The most touching QSO

It appears a chap named Alan  
Had a problem with his speech  
To co-ordinate his thoughts to voice  
Was not quite within his reach

To hear him struggle gamely  
To put his point of view  
Assisted by his patient friends  
My respect for radio grew

This problem made him wary  
It caused him some restraint

From using of the airways  
The result of heart complaint

So he looks for understanding  
Or for someone that he knows  
To help him with his trouble  
He may have during QSOs

Now I felt like I was plying  
While I listened to this net  
Such a greater bunch of fellows  
I am sure I haven't met

While I listened to them talking  
I thought I'd put to verse  
Of their camaraderie and understanding  
In helping him converse

A lump appeared within my throat  
I found the need to swallow  
While I listened to this QSO  
WHAT a bunch of fellows.



# QSP

### SOFT ERROR

The development of very large scale ICs, especially RAM circuits, has brought with it a specific problem in the dense memory circuits (64k chips now commercially available) related to the "temporary" loss of stored information brought about by alpha-particle emission. This effect, known as "soft error", are entirely random and could result in system malfunction. The alpha-particles originate from naturally occurring radioactive uranium and thorium which may be present in minute quantities in the silicon chip itself or in its associated interconnections and packaging materials. The UK Atomic Energy Authority's Harwell research laboratory has developed a highly sensitive technique suitable for detecting the presence of uranium as the source of low alpha-emission rates. More complex and denser memory circuits — 256k and 512k RAMS — are under development and the "soft error" problems are expected to become more acute.—Info. Tech. from Britain, press release 14th April.



# NATIONAL EMC ADVISORY SERVICE

Tony Tregale VK3QQ  
Federal EMC Co-ordinator  
38 Wattle Drive, Watsonia 3067

## CABLE TELEVISION — NORTH AMERICAN EXPERIENCE

Two-metre Amateur Radio outlawed? Not yet, but it could be very soon. Here's why.

A problem of significant importance to Amateur Radio is cable leakage from Community Antenna Television (CATV) systems. Interference FROM leaking cable systems into Amateur stations (and the reverse situation of interference TO cable systems) is becoming an issue of increasing magnitude. Incidents of interference from leaking cable systems operating on mid-band frequencies to legitimate Amateur Radio operations, especially in the 144-148 MHz band, have increased at an alarming rate. The problem is aggravated by the inherent proximity of the cable systems to Amateur stations. Both operate in residential areas, and co-location is unavoidable.

Cable television is technically a non-broadcast, or closed, service, and therefore no interaction between cable systems and any radio service should occur. In fact, however, this is far from true, and interference between cable systems and Amateur stations, often resulting in law suits against Amateurs in local courts, is increasing at a rate that demands FCC attention.

The cable television service is regulated by Part 76 of the FCC rules, just as the Amateur service is regulated by Part 97. Section 76.605 (a) (12) of the Commission's rules limits cable leakage to 20 microvolts per metre measured at a distance of ten feet from the cable at frequencies of 54-216 MHz. The main concern of the FCC is primarily with the potential for harmful interference to ground/air communications and navigation services. A leak measured at 20 microvolts per metre at ten feet can cause interference to a nearby Amateur receiver and, by the same token, such a cable leak will allow a significant amount of signal to enter the cable from a nearby high-power Amateur transmitter.

To further aggravate the situation, a Notice of Proposed Rule Making has been released by the FCC, the intention of which is to relax the cable leakage requirements to a maximum level of 100 microvolts per metre measured at ten feet from the cable. The ARRL has taken a strong stand in this matter and has filed a brief opposing the proposals to relax leakage standards. An increase in permissible cable signal leakage will have a more profound effect on Amateur Radio operations than on any other radio service.

The portion of a cable system that creates the biggest problem, in terms of cable leakage interference, is the drop cable from the pole to the home. The shielding of this flexible coaxial cable is less effective than is the solid aluminium hardline shielding around the cable on the pole. The drop cable moves around in the wind because of its flexibility, and the connectors used, being low-cost items, are far more subject to corrosion than are the communications-grade devices familiar to Amateurs. And all of these weaknesses are present in high-density areas, close to Amateur VHF stations. An increase in permissible leakage levels to 100 microvolts per metre at 54-216 MHz may not increase interference to aeronautical stations, but it most certainly will create or increase interference to Amateur 144-148 MHz operation. Further, cable leakage interference works both ways. Since Amateur stations are primarily located in residential areas, increases in the number of cases of interference to cable subscribers by local Amateur VHF transmissions will result.

Cable television (CATV) was known originally as "community antenna television". Today it represents the broad area of entertainment and other services carried over coaxial cable networks to various subscribers. As implied by the name, the original purpose of CATV was to serve communities with entertainment television service where TV reception was poor. The idea was to find one good receiving site, pick up signals from local and distant TV transmitters, and relay these signals by way of coaxial cable to residents of the community. This concept was applied widely, and many people enjoyed satisfactory TV reception through these systems.

In the early days a few channels were distributed within the VHF band. The limit was generally the 12-channel capacity of the standard VHF television receiver. Many 12-channel cable systems are still in operation. Cable television has not always been an economic success. Therefore, in recent years, systems have been enlarged to carry many more channels with particular emphasis on premium entertainment services such as Home Box Office and Show Time.

Today, sophisticated CATV installations offer high capacity and quality in essentially closed communication systems. A wide variety of quality equipment is available from a number of manufacturers to construct the systems and implement the

services. CATV systems serve mainly residential subscribers; they are installed on a franchise basis in each community. There are nearly 20 million cable homes across the United States. Cable TV systems have also proved popular in Canada. Large CATV installations can be found in various other countries around the world.

Many of the recent franchise requirements have called for increasingly sophisticated systems with high capacity and interactive services.

Amateurs and other users of the radio spectrum have become victims of a new strain of RFI virus — CATV, cable television interference. And, FCC antigens have been rendered ineffectual in combating it. It seems that with every turn made by the home-entertainment industry to meet the omnipresent demand for its goods and services, infringement of the rights of radio amateurs is a pronounced side effect. We saw it in the 1950s, and are seeing it again today in the form of CATV.

On paper, cable systems are non-broadcast facilities; that is, OFF-AIR carriers of television programming contained within their pathways, CLOSED to the outside RF environment. By this definition, then, the decision of which frequencies to utilize in the system becomes purely one of economics — the configuration that yields the least costly means of distribution will be chosen. No other factors need to be considered. Channel arrangements are generated within industry boundaries with minimal government intervention, and often include amateur frequencies.

### TWO-WAY CABLE

The newest CATV systems provide bi-directional capability. If the description of a typical system did not excite your interest, notice that we are now adding an upstream path from every subscriber to the head-end. All kinds of two-way services may now be implemented. Currently these include home security, power company load control, meter reading, traffic control, point-to-point communications, surveillance camera control and a host of others, including the broad scope of interactive services to the home. These services will include banking, shopping, graphics, home computer services, catalogue displays and services that have not yet been conceived.

To provide bi-directional transmission, the cable is fitted with reverse amplifiers, usually covering the range of 5 to 30 MHz.

The configuration of 50 to 300 MHz or more downstream (from the head-end) plus 5-30 MHz upstream is referred to as a "subsplit" CATV system. In cases where there are numerous industrial users or multiple residential cables, the "midsplit" system is often employed. Typical frequencies for a midsplit system are 5 to 120 MHz upstream and 174 to 300 MHz or more downstream.

Perhaps you want to sense a potential problem. Some CATV systems are now operating in all of the amateur frequencies from 7 to 28 MHz where high power and large antennas are generally employed. One of the worst problems that operators of two-way cable systems have had to date is with citizens band transmissions. There are many CB transmitters, mostly mobile, making it difficult to locate the source of the interference. The matter of leakage from the cable system to the amateur on the upstream frequencies so far has been almost non-existent because of limited use of two-way operation to date.

Interference entering the cable system on upstream frequencies results in an interesting problem. In the earlier description a typical system was shown to resemble a tree whose root is the head-end. The system branches to feed different areas until finally it reaches the subscriber, which you might liken to the end of the twig on a branch. Consider signals being transmitted from subscribers to the head-end. There is

a situation where there can be thousands and thousands of "twigs" generating signals that all come together at the head-end. Should an interfering signal enter the system, it is impossible to tell where it originated. This means that curing the interference may take a long time. In that time it can do a lot of damage since an intruding signal in an upstream data channel can totally obliterate the service. Cable operators are becoming aware of this problem and are taking steps to avoid it. The most flexible solution utilizes remotely controlled switches to selectively divide the system into areas. This technique can be used to locate the vicinity of interference entry. This section is then shut off, allowing the rest of the system to function while corrective action is taken.

#### AUSTRALIA

The WIA submits that it is essential that a comprehensive set of technical regulations and standards be prepared prior to the introduction of any form of subscription cable or pay TV service. These should be laid open for public comment before their adoption.

#### THE TECHNICAL REGULATIONS SHOULD INCLUDE:—

- A set of standards for the design, installation and operation of the system compliance with which will ensure high immunity to and from interference involving other services, particularly

the Amateur Service.

- Specified inspection requirements, and a means by which adherence to the standards can be enforced.
- A requirement that all TV distribution using the RF spectrum, whether by cable or radiation, use channels in accordance with internationally accepted tables of frequency allocations to the Broadcasting Service.

**It is absolutely essential that a single authority be responsible for the specification of adequate standards and have adequate power to ensure compliance with those standards. Such an authority should be responsible for all technical aspects of the system including—**

- A responsibility for ensuring immunity to interference to and from the normal operations of other users of the radio frequency spectrum, and
- A responsibility for ensuring that prompt corrective action is taken should such interference arise.

If there is still anyone who has any doubt about the devastation which can be caused by a sub-standard cable or pay TV system we strongly recommend that they obtain a copy of Federal Communications Commission's report number 2504 — "Three cable systems notified of apparent liabilities for forfeitures for VIOLATION OF AERONAUTICAL FREQUENCY USE RULES". ■



## TRY THIS

## MAKING GOOD PRINTED CIRCUITS

By D. R. Archer ZL2BIX

Much has been written about printed circuits and "easy" ways of making them. I would like to clarify a few points.

The "easy" methods generally produce mediocre boards at best. Really good boards require an expertise that is like CW, it takes time to master.

If you are smacking up an amplifier to see how it performs, and it uses only transistors and no ICs then you will probably do what I do, and draw it directly on to clean board with a felt tip. It won't get into any art exhibition but it most likely will do the job satisfactorily.

But what if you've decided on that 500 MHz counter with a zillion ICs? Ah ha, now that's a different matter.

You can get a negative from the pattern in the article by two methods. One is to overlay the pattern with mylar or drafting paper and stick the donuts and tracks on till you have built up a same-sized positive. To turn that into a negative you must lay it on top of, and touching, a suitable piece of ortho film. Now this film can be used in the presence of a RED safe light. One of its characteristics is that the black areas come out really black and the "whites" are actually clear. There are no grey tones.

That's why ordinary film is pretty hopeless for the job.

The second method, and the one I use most often, is to take a photo of the artwork in the article. It is possible to use an ordinary camera with close-up lens fitted but that is outside the scope of most hobbyists. You would still have to enlarge the negative back to its original size, so that's a lot of work. I use a 1:1 copier which I made. The only hard-to-get part is the lens, which needs to be a long focal length one.

I just happened to have an 8½ in. one on hand. You can play around for weeks trying to find suitable distances to put the copy, the lens, and the negative. The simplest way is to go to a library, look it all up and discover that if you want your negative the same size as your copy you place your copy 2x the focal length away from the lens, and likewise the negative is also 2x the focal length away from the lens. You don't have to be a mathematical genius to figure out that my distances were both 17 inches.

The copy needs to be illuminated with 100 watt lamps angled at 45 degrees, one on each side.

The film is developed and fixed in the

usual manner and hung up to dry. You now use this to print your board with.

Always check for flaws in the neg. and touch up as necessary.

Pre-coated board is available in many centres. If you intend coating your own board with either liquid or spray, don't do it in the winter as the low temperatures result in highly unreliable results. However, during the warmer part of the year there's no problem. Just clean your PCB with dry steel wool. Keep water away altogether. Lightly wipe it to remove dust, apply the photo resist, allow to drain for about a minute and then place it in a box to keep light out. The photo-resist is not affected by light while it is wet; only after it has dried. Ordinary house lights don't affect it at all.

If you coat your own you will need to develop the board after exposure with a liquid called trichloroethylene, or "trichlo" for short. The pre-coated board uses a developer available from the same supplier.

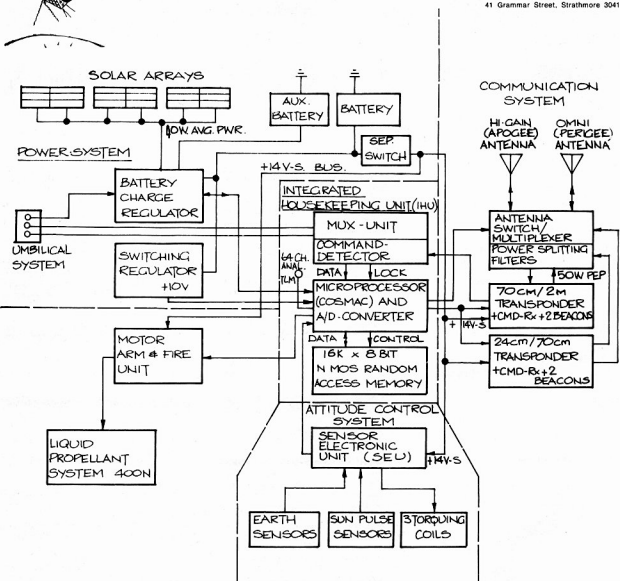
If you live where there's a lot of sun you can expose your boards for 60 seconds or less if it's totally cloudless.

Reprinted from Break-In March 1982

# AMSAT AUSTRALIA

Bob Arnold VK3ZBB

41 Grammar Street, Strathmore 3041



## PHASE IIIB S/C FUNCTIONAL BLOCK DIAGRAM

The complete Phase IIIB spacecraft functional block diagram. You might want to study this diagram for familiarity and to keep the diagram handy. We will be referring to it frequently in future issues as we pick up the Phase III countdown series. The next instalment will be on perhaps the most complex and least understood of all the spacecraft functional units: the Sensor Electronics Unit (SEU). The complexity and elegance of this unit will amaze! The block diagram is part of a complete documentation package produced by AMSAT DL to whom we extend "viele danke!"

NATIONAL CO-ORDINATOR:  
Chas Robinson VK3ACR.

CORRESPONDENTS:  
VK3YQX, VK5AGR.

INFORMATION NETS:

AMSAT AUSTRALIA  
Control: VK3ACR.

1000 UTC Wednesday and Sunday, 3.680 MHz winter, 7.064 MHz summer.

AMSAT PACIFIC  
Control: JA1ANG.  
1100 UTC Sunday, 14.305 MHz.

AMSAT SW PACIFIC  
Control: W6CG.  
2200 UTC Saturday, 28.880 MHz.

## NEW SATELLITE DX RECORD CLAIMED

An all-time satellite DX record is being claimed by VK4TL and WH6AMX for their RS-8 QSO early Saturday, 3rd July. Details were incomplete at press-time, but it seems certain at least that this is the first VK-WH6 QSO via satellite ever. It remains to be verified, however, but the QSO represents

the longest satellite DX on record. Congratulations to John and Rick in any case!  
COURTESY AMSAT SATELLITE REPORT.

#### SATELLITE STATUS REPORT

RK0Z has not been heard since early July and it is presumed that the satellite has re-entered the earth's atmosphere and has been destroyed.

There have been no reports of this satellite being operational whilst over Australia.

UOSAT UO9 has not changed. Tones continue to be heard from the beacons on 2m and 70 cm, and AMSAT-UK reports that three independent listeners heard a distinct change of note of the 145.825 MHz beacon at 1342 UTC on 20th June.

K1WHS has received a package of data to enable him to attempt to switch the 145 MHz system from transmit to receive. K1WHS has some 3 kW of RF at the required frequency and uses an antenna having 35 dB gain.

Thanks to AMSAT-UK for this report.

AMSAT OSCAR 8 is working according to schedule. Generally switched off on Wednesdays.

RS SERIES 3 TO 8 are operating satisfactorily.

#### OSCAR NEWS

Once again I have been gloating over the latest edition of Oscar News published by AMSAT-UK. As usual, it is a most informative publication. In the near future AMSAT-UK will be issuing a revised edition of "THE GUIDE TO OSCAR SATELLITE OPERATION FOR THE RADIO AMATEUR" and I hope to obtain an early copy for review.

If you wish to learn more of the UK approach to satellite operations why not join AMSAT-UK by sending a draft for £12 to Ron Broadbent, Secretary, AMSAT-UK, 94 Herongate Road, Wanstead Park, London E12, 5EQ.

By the way, AMSAT-UK is not a greedy organisation, most of your money will be spent on mailing charges. ■



AUSTRALIAN LADIES AMATEUR  
ASSOCIATION

ALARA

Margaret Loft VK3DML  
28 Lawrence Street, Castlemaine 3450

Well, our first on-air Annual General Meeting, held last night, was an outstanding success, to the delight of the committee. Twenty-two YLs, including VK2, 3, 4, 5, 6, 7 called in to register their vote and three postal votes were received. This was a very heartening response and certainly makes the efforts of our executive committee worthwhile.

Geraldine VK2NQI very capably chaired the meeting and is to be commended on the efficient and smooth running of the agenda; the constitution was unanimously adopted with the amendments as per July newsletter.

#### OFFICE BEARERS

All officers indicated they were willing to continue in their respective positions for a further 12 months, so the following list is for 1982-83: President, Geraldine VK2NQI; Vice-President, Joyce VK2DIX; Secretary, Jessie VK3VAN; Treasurer, Valda VK3DVT; Editor, Marlene VK5QO; Awards Cust., Mavis VK3KS; Publicity Officer/Contest Manager Margaret VK3DML.

ALARA'S thanks were conveyed to all these girls for their past contributions and best wishes for the next 12 months by Bev VK6NYL after the business part of the meeting and this was endorsed by all on frequency.

Jenny VK5ANW has volunteered to be Historian for ALARA, so thanks to you, Jenny, and hope you enjoy compiling our records. If anyone has any item of interest or photos of earlier meetings of LARA please get in touch with Jenny, she will be very happy to receive them.

State Reps.: VK2 II, VK3DMS Marilyn, VK4 II, VK5ANW Jenny, VK6YL Gill, VK7HD Helene.

#### PHOTOS

Girls, have you a spare photo of yourself I can include in my column, maybe a group taken at a convention, Field Day or barbecue? The photos I have received have been very popular in AR, it is so much nicer to be able to see a face with a voice. So please look through your album or even a negative will do. I will return them if requested.

Best wishes to all who sat for the exam in August and we do hope you were successful and look forward to hearing some new call signs on air very soon.

#### VK8

VK8 YLs where are you? I am frequently asked if there are any; so please if you know of a YL in VK8-land let me know. If anyone is trying to work all States YL you will be very popular, also in ALARA's contest on Saturday, 13th November, 1982, from 0001 to 2359 UTC, details of rules, etc., will be in contest columns in AR and associated magazines.

ALARA membership in July 1982 is VKs 92, DX 53, in 10 countries, Valda VK3DVT, our Treasurer, would be very pleased to hear from prospective members. The address is Ms. V. Trenberth, PO Box 4, Brighton 3186. Also available from Valda are teaspoons, badges and charms with the ALARA logo. These would make a nice gift.

Maybe a spoon and a subscription to ALARA would be an incentive to your YL to join you in your hobby.

Do hope everyone is well and not too many been a victim of the flu this winter, by all accounts it is a nasty experience.

Until next month 73/33/88 to all.

Margaret VK3DML. ■



This photo was taken at the QTH of Valda when Jenny was in Melbourne at the Federal Convention in May. Back row (left to right): Joyce VK3VBB, Jessie VK3VAN, Raedi YF/VK3BHL, Jenny VK5ANW, Mavis VK3KS. Seated: Valda VK3DVT, Kate Duncan.

## WIA INSERTS INTO AR



### NOTICE TO WIA ZONES, CLUBS AND GROUPS

WIA Zone, Club and other Group Secretaries are hereby notified that inserts into AR henceforward will be accepted ONLY direct from a Division and then only by prior arrangement with the Secretary.

All inserts must comply with Postal Regulations and must be received not later than the 26th of the month preceding publication date.

# HF, UHF and VHF ANTENNAS BY ATN

W0813

15/11/10 Mx	Price incl. balun	
ATN 20-30-1 rotary dipole		\$40
10/11 Mx model	Gain dbi	Boom
ATN 28-29-3B 10 Mx	10.0	3.5M
ATN 27-18-3B 11 Mx	10.0	3.5M
ATN 27-30-3B 10/11 Mx	10.0	3.5M
		\$90
6 Mx		
ATN 50-52-5-5	11.9	3.5M
ATN 50-53-8	14.2	5.5M
ATN 50-53-11	16.2	9.0M
		\$189
2 Mx		
ATN 144-148-8	12.7	2.2M
ATN 144-148-11	14.6	3.8M
ATN 144-148-16	17.0	6.3M
ATN 144-148-13WS	17.3	7.0M
		\$89
70 cm Model (N Conns)		
ATN 420-470-6	10.2	0.6M
ATN 420-470-14	14.2	1.5M
ATN 420-440-11	15.7	1.85M
ATN 420-440-15	16.7	2.85M
ATN 420-450-27	16.7	3.05M
ATN 432-16LB	17.2	3.7M
		\$85
UHF CB (N Conns)		
ATN 47-5	9.2	0.65M
ATN 47-11	17.0	1.7M
ATN 47-15	17.8	2.8M
		\$75
Amateur TV Translator		
ATN 580-14 (N Conns)	17.5	2.0M
		\$69

Also available power dividers/couplers, quarter wave sleeve baluns and matching harnesses for stacks of two or more arrays; also 1:1 and 4:1 baluns in 200W or 1 kW and insulators for homebrew. Write for free catalogue.

## ATN ANTENNAS

ALSO AVAILABLE FROM: VIC. (03) 873 3939 TAS. (002) 47 6674  
VIC. (03) 789 3412 TAS. (003) 31 7075

Dealer requests invited

**ALL LISTED HF ANTENNAS** use top grade 6063-T83 seamless tapered and swaged tubing elements with non-brittle ABS tough weather resistant insulators. Booms are 2" OD (longer booms use guys supplied) and elements taper from 1/4" OD or 3/8" OD depending on length. Longer elements use positive rake on insulators to reduce unsightly sag. The best possible materials have been chosen to suit tough Australian weather conditions.

**OSCAR PHASE III** Complete kit of Circularly Polarised 16EL for 2 Mx + 28EL for 70cm + Phasing Harnesses + Fibreglass Crossarm + Bracket \$435.

**TRAPLESS TRIBANDERS, 13-30 MHz, Continuous Coverage**  
(Includes new LWARC & CB) (LOG PERIODICS)

Model	Elements	Boom (metres)	Gain dbi Minimum	Price with 2KW PEP Balun
13-30-6	6	6.0	7.5	\$319
13-30-8	8	8.5	9.0	\$399

**TRAPLESS DUOBANDERS, 20-30 MHz, Continuous Coverage**  
(Includes new LWARC & CB) (LOG PERIODICS)

Model	Elements	Boom (metres)	Gain dbi Minimum	Price with 2KW PEP Balun
20-30-6S	6	4	7.5	\$199
20-30-6L	6	6	8.5	\$229
20-30-8	8	8.5	10.2	\$299
14-14-4-3	3	6	9.2	\$179
21-31-5-3	3	4.5	9.2	\$119

**MONOBANDERS — For 14 and 21 MHz**

Model	Elements	Boom (metres)	Gain dbi Minimum	Price with 2KW PEP Balun
14-14-4-4	4	7	10	\$269
21-21-5-4	4	6	9.9	\$199
21-21-5-5	5	8	11.2	\$289

**56 CAMPBELL STREET, BIRCHIP, VIC., 3483**  
**PHONE (OFFICE) (054) 92 2264 (FACTORY) (054) 92 2224**

W.A. (09) 328 9229 QLD. (07) 397 0808  
S.A. (08) 47 3668 N.S.W. (067) 65 4622 (069) 21 2125  
(067) 42 2838

## WANTED NOVICE RADIO OPERATORS

(to be)

The **Novice Operators Theory Handbook** is recently released and is just the thing for anyone who wishes to get their NAOCP. It is in fact a course book which follows closely the Dept. of Communications syllabus. Plenty of clear diagrams are used and the text is written in simple to follow language. There are sample exam questions at the end of each chapter too. This book would make an ideal gift for any budding Novice.

To obtain your copy, Write:

**SANDY VK2AD** 110 Rosemead Rd. Hornsby 2077 if you are in NSW, QLD, or ACT, or:

**GRAEME VK3ZR** 11 Balmoral Cres., Surrey Hills 3127, if you are in Vic., Tas., SA, WA or NT (or Regions 1, 2 or 3)

Name: \* Amateur Radio 82.

Address:

**NOVICE OPERATORS THEORY HANDBOOK (\$7.50 incl. post) ...**

**Novice Morse code Tape (\$5.00 incl. post) .....**

**8/10/15 WPM " " " " .....**

**10 WPM exams " " " " .....**

**15 WPM " " " " .....**

**10-20 WPM " " " " .....**

**30 WPM " " " " .....**

## "THE RADIOCOMMUNICATIONS ACT"

Communications and Electronics have progressed dramatically since the Wireless Telegraphy Act was written.

After many attempts to re-write the old Act, there is now every indication that the Bill for the new Act will be 'tabled' in Parliament during the Budget Session (17 Aug.-25 Nov.).

The Bill will be given its first reading by the Minister for Communications, the Rt. Hon. N. A. BROWN — "The Bill is then open for public comment."

The National EMC Advisory Service would like to remind all Amateurs of the importance of this — "Bill for the New Act" — and the direct effect this new Act could have on the Amateur Radio Service.

The "Bill" is the "Act" in draft form; therefore it can be amended many times, before it becomes an Act ... Copies of the Bill should become available at the Government Printer's Office after the first reading.

Every member of the Amateur Radio Service should, in the interest of the continued well-being of our Service, ensure that he or she is familiar with all aspects of the Bill, which directly or indirectly affect the Amateur Radio Service.

The National EMC Advisory Service is assisting the Federal Executive in setting up a committee to handle the Institute's response to the Bill. The committee has been instructed to take account of opinion from all areas when responding to the Bill.

If, after studying the contents of the Bill, you feel that you have a contribution, or may be in a position to assist the committee with any facet of this important response, please WRITE to your Division, or direct to:

**CHAIRMAN, C.A.S.P.A.R.**  
(Communications Act Special Planning and Response)  
Committee, P.O. Box 150, Toorak, 3142.





## EDUCATION NOTES

Brenda Edmonds VK3KT  
Federal Education Co-ordinator  
56 Baden Powell Drive, Frankston 3199

### FEE INCREASE

The proposal to increase examination fees has been around for some time. There are a few comments I would like to make. I think we have to accept that the present fees are unrealistically low — that they cannot cover a fraction of the costs involved in the processing of applications, arranging exams, providing papers, marking and notifying results. The ones who have gained most from the low fees have been the candidates who needed "EXAM PRACTICE", or to overcome "EXAM NERVES".

If the fees are significantly increased, candidates will presumably be less likely to enter unless they think they have a reasonable chance of passing, and so will miss this experience. I do not think there will be any marked drop in the number of attempts per candidate — those who need the exam practice will be those who will most likely need to have two attempts at the exam.

It will be interesting to see whether increased fees will result in a higher pass rate.

### MAY NOVICE RESULTS

Statistics for the May Novice exams have

been released recently, and are available on request. As usual, pass rates vary with the section — being highest for CW sending (range 52.6 per cent for VK7 to 93.2 per cent from VK5/8) and lowest for theory (36.8 per cent VK7 to 58.2 per cent VK4). Nationwide averages work out at — theory 50.2 per cent, regulations 69.1 per cent, CW sending 79.9 per cent, CW receiving 59.5 per cent. The total pass rate for all sections of Novice level was 1,007 out of 1,608 candidates sitting — 62.6 per cent.

However, when we look at the pass rate in terms of applications received, it is a very different story — 2,277 candidates applied — over 650 did not actually sit. This would seem to be where the main reorganisation is needed. Obviously a "drop out" rate of 30 per cent must account for a large part of the administration costs.

The point that immediately comes to mind is the long time gap between the closing date for applications and the exam date. It is to be hoped that DOC consider this aspect as well as just the fees. Perhaps they will also consider evening or weekend exams.

### INSTRUCTIONAL GUIDANCE

Plans are proceeding for the production of an instructor's kit to be made available to persons running classes at either level. By the time this appears, Divisions should have been notified in more detail of what is happening, but I would like to appeal here to anyone who feels they can contribute anything to this project to contact me direct. If you have run a course — Novice, AOCIP or bridging — what sort of assistance would you have appreciated — which sections of the course were lacking in resource material? What input can you offer to a group that is trying to take some of the effort, and loneliness, out of the instructor's role? Would you like to be part of the group? Do you have any particular talents you can offer the group? We are looking towards having material ready for trialling by early 1983, but we are going to need help. I can be reached QTHR, by phone (03) 787 5350, or on the Education Net, Wednesday evenings 12.00 UTC, 3.685 MHz. I will be looking forward to hearing from YOU.

73. Brenda.

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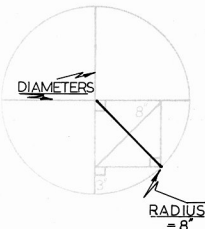
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# June AR Competition Winner

The Problem was:

Find the radius of this circle



The correct solution: 8 inches — as illustrated

Mr. W. E. CATCHPOLE VK5AU

74 Church Terrace  
Walkerville, SA 5081

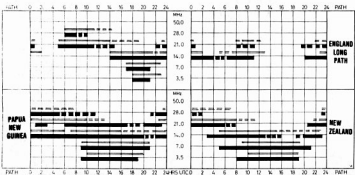
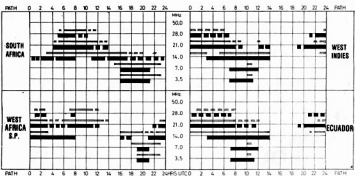
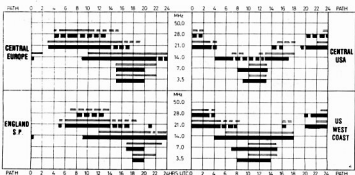
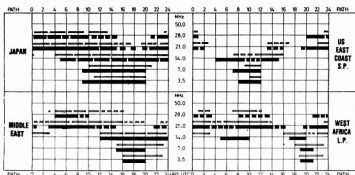
was the lucky winner of the MFJ-402 SOLID STATE ECONO KEYS kindly donated by GFS ELECTRONIC IMPORTS for the Competition announced in JUNE AR. Congratulations to our winner, thanks to the overwhelming number of members for the entries submitted and GFS ELECTRONIC IMPORTS for making the prize available.

## CORRECT SOLUTION

The correct solution as shown was 8 inches. A perusal of the entries after the drawing showed answers ranging from 3 to 53.17864 inches. If you missed out on winning or entering, turn to page 25 August AR and try your hand at a different type of brain teaser and a chance of winning Competition No. 3.

# IONOSPHERIC PREDICTIONS

Len Poynter  
VK3BYE



**WIA**  
**COMPETITION**  
**#2**



Bruce VK3UV drawing the correct winning entry.

# WICEN NEWS



R. G. Henderson VK1RH  
171 Kingsford Smith Drive, Melba, ACT 2615

"It is some three years since this column contained an example of a formal message sent by radio. Listening recently to the bands I am of the opinion that it's time to print a reminder of that procedure."

The formal message example chosen is from the ACT WICEN course lesson notes and the accompanying sender's script is self-explanatory. VK1RH was the sender and VK1ZDF the receiver.

The procedure used is that given in the "little grey book", Civil Defence Communications, Part III, 1969. As always, the aim is to clearly and quickly convey the contents of the formal message over the network.

## FORMAL MESSAGE — SENDER'S SCRIPT

VK1ZDF — THIS IS VK1RH — LONG MESSAGE — OVER.

VK1RH — THIS IS VK1ZDF — SEND — OVER.

THIS IS VK1RH — PRECEDENCE ACTION — ROUTINE — TIME TWO SEVEN ONE FOUR ZERO ZERO KILO JUNE 82 — ORIGINATOR'S NUMBER BRAVO SIERRA 7 — FROM BRINDABELLA SEARCH HQ — TO C ES — BREAK — EXERCISE.

PARA 1 — STOP — SEARCH CONTINUES AS PLANNED — STOP — ROGER SO FAR — OVER.

VK1ZDF — ROGER — OVER.

VK1RH — PARA 2 — STOP — RESUPPLY REQUIREMENTS FOR NEXT FIGURES 24 HOURS FOLLOW — STOP — ALPHA STOP — MEALS FOR FIGURES 25 SEARCHERS AND FIGURES 5 FOR HQ STAFF TO BE DELIVERED TO THIS HQ IN SEPARATE HOT BOXES — STOP — ROGER SO FAR — OVER.

VK1ZDF — ROGER — OVER.

VK1RH — BRAVO — STOP — WATER COMMA FIGURES 10 PLASTIC JERRICANS — STOP — CHARLIE — STOP — PETROL COMMA FIGURES 44 GALS WITH PUMP — STOP — DELTA — STOP — FIGURES 25 WATERPROOF SMOCKS — STOP — ROGER SO FAR — OVER.

VK1ZDF — ROGER — OVER.

VK1RH — ECHO — STOP — FIGURES 6 BY FIGURES 12 VOLT CAR BATTERIES FOR RADIO BASE — STOP — FOXTROT — STOP — FIGURES ONE HANDSET TYPE 1 SPELL HOTEL UNIFORM FIGURES 38 — STOP — ROGER SO FAR — OVER.

OC 33 Issued Mar 77 Formerly CM99, P Sigs 52-1, A224		Department of Defence MESSAGE FORM		SECURITY CLASSIFICATION AND SPECIAL HANDLING INSTRUCTIONS	
LINE 1					
LINE 2					
LINE 3					
LINE 4					
LINE 5					
PRECEDENCE — ACTION ROUTINE		PRECEDENCE — INFO ROUTINE 2		DATE — TIME GROUP 271400ZJUN76	
ROUTING INDICATORS		MESSAGE INSTRUCTIONS		SIG/CRIG NO	
FROM BRINDABELLA SEARCH HQ		(We use only one address per line)		BS7	
TO CES				GR	
EXERCISE 1. SEARCH CONTINUES AS PLANNED.					
2. RESUPPLY REQUIREMENTS FOR NEXT 24 HOURS. FOLLOW					
A. MEALS FOR 25 SEARCHERS AND 5 FOR HQ STAFF					
TO BE DELIVERED TO THIS HQ IN SEPARATE HOT BOXES					
B. WATER, 18 PLASTIC JERRICANS.					
C. PETROL, 44 GALS WITH PUMP.					
D. 25 WATERPROOF SMOCKS.					
E. 6 BY 12 VOLT CAR BATTERIES FOR RADIO BASE.					
F. 1 HANDSET TYPE HU38.					
3. IF HIKERS NOT FOUND BY 281200Z WILL NEED TO ROTATE SEARCHERS AND REST PRESENT PARTY FOR 24 HOURS.					
PAGE NO 1		DRAFTER'S NAME AND TITLE HENDERSON		PHONE NO	
NO OF PAGES 1		RELEASEE'S NAME AND TITLE HENDERSON		SIGNATURE	
FOR OPS USE		DATE		DATE	
TIME		SYSTEM		SYSTEM	
OPERATOR		OPERATOR		SECURITY CLASSIFICATION	

Stock No 7520-86-084-6819

Message Form sample

VK1ZDF — ROGER — OVER.  
VK1RH — PARA 3 — STOP — IF HIKERS  
NOT FOUND BY TIME 281200 KILO WILL  
NEED TO ROTATE SEARCHERS AND

REST PRESENT PARTY FOR FIGURES  
24 HOURS — STOP — OVER.  
VK1ZDF — ROGER — OVER.  
VK1RH — ROGER — OUT.



## INTERNATIONAL NEWS

### 10 MHz BAND

A count in June showed that amateurs in 29 countries were operative on, or could use, the new 10 MHz band. Most amateurs will, by now, be aware that all three IARU Regional organisations are encouraging the use of narrow band modes only for this band.

### 18 AND 24 MHz BANDS

So far only four countries have authorised the use of this band by their amateurs — Denmark, W. Germany, Netherlands and Switzerland.

### FOUNDATION DATES OF SOCIETIES

WIA — 10/3/1910.  
RSGB — 5/7/1913.  
ARRL — 18/5/1914.  
SRAL (Finland) — 14/4/1921.

### IARU REGION 3 ASSOCIATION

Arising from the Manila Conference in April the new IARU R3 Secretary is Masayoshi Fujioka JM1UXU, replacing David Rankin 9V1RH/VK3QV, who is now Chairman of Directors.

### JAPAN

A letter from Joe Speroni, the President, advises that the Tokyo International Amateur Radio Association (TIARA) has been formed for alien amateurs resident in Japan. The address is given as PO Box 119, Akasaka, Minato-ku, Tokyo 107. Visitors are very welcome to attend TIARA Club meetings held on the last Friday of every month. Also mentioned was the fact that alien amateurs who are resident in Japan and citizens of USA, West Germany, Finland or Eire can operate in Japan via Japanese club licensing procedures. Negotiations for full reciprocal licensing with twelve countries are under way.

### 5Y4ITU TO OPERATE AT ITU CONFERENCE

To commemorate the Plenipotentiary Conference of the ITU, which will be held in Nairobi from September 28th to November 5th this year, the Radio Society of Kenya (RSK) plans to set up and operate a special event station in the Jomo Kenyatta Conference Centre, Nairobi, which is the venue for the ITU Conference. It is planned to operate the special station during a period of four weeks, starting October 12th. The RSK is requesting a change of prefix for the duration of this event from 5Z4 to 5Y4 to be effective for all amateur stations operating in Kenya and also permission to use the special call sign 5Y4ITU for the Conference Centre station.

Fifty first day covers, which will be issued by the Kenya Posts and Telecommunications Corporation to commemorate this event, will be purchased so that one may be sent with the QSL card to the first 50 stations making a QSO with 5Y4ITU.

From ITU Calendar No. 112

### JAPAN: REPEATERS AUTHORISED

The introduction of repeaters into the amateur service in Japan was approved by the Ministry of Posts and Telecommunications on January 23rd, 1982. The policy the ministry announced as to the licensing of repeaters includes the following conditions:—

- Licensees should be the Japan Amateur Radio League.
- Repeaters should not be operated portable but be fixed stations.
- Repeaters will be licensed only in the 430 MHz and 1.2 GHz bands.
- Antenna power is limited to 10 watts on 430 MHz and 1 watt on 1.2 GHz.

The first repeater, JR1WA, located at the JARL headquarters in Tokyo, was licensed on March 5th. Its input frequency is 434.92 MHz, and the output 439.92 MHz. The JARL intends to establish a repeater in each of the ten call districts and in Okinawa Prefecture: a total of eleven.

### Chuckle Corner



I have been rather busy lately with a thorny antenna problem. Some new people moved in recently a few houses away, and in the first week a dipole appeared behind the house. It was slung high in the trees in such a way that I can just see the feed point and transmission line as I leave my driveway in the mornings.

Before I had a chance to talk to any of the people there, I noticed that the feed point on the antenna was in a different position from the day before. In fact, it was different almost every day. By estimating the distances of the feed from each end of the antenna, and by listening for a loud nearby station, I tried to work out how the antenna was able to radiate on several of the ham bands. It would appear that the antenna is of very flexible design with one "leg" measured to resonate on the desired frequency while the other might be grounded. Or perhaps the resonant part naturally takes the signal because the impedance is low, while the impedance is too high in the non-resonant part.

I have had several quite reputable engineers working on the problem, as is a rather large computer at a certain nearby college. So I was amazed yesterday as I walked out of the house to ask the owner about the wonderful all-band antenna, and found a large hairy dog attached to the end of the down lead. I understand that it is called a dog trolley or dog walker. The animal's leash is looped over its overhead rope so he can move around the yard. I hope that none of my friends find out about this.

From The Spark Gap (Wellesley ARS) by N1ADX



## CS-1560A<sub>II</sub> 130mm Triggered Sweep Oscilloscope



SPECIAL OFFER!

**\$599.00**

Including 2 probes, sales tax and delivery anywhere in Australia

### FEATURES:

- \* Sweep times are selectable in 19 ranges from 0.5  $\mu$ s/div to 0.5 s/div. A x5 sweep magnifier expands its application range considerably and makes the instrument truly easy to use.
- \* A low vertical-axis input capacitance and a high deflection sensitivity of 10 mV/div. The frequency range is broad enough to cover from DC to 15 MHz.
- \* Automatic selection of Chopped or Alternate sweep modes.
- \* To provide high electron-beam permeability, a high luminance cathode ray tube is used.
- \* Trace rotation is included to simplify angular corrections for bright lines.
- \* A wide selection for synchronization (INT, CH1, CH2, LINE and EXT).
- \* During Lissajous measurements, the instrument uses a high deflection factor X-Y system with CH1 used as the Y-axis and CH2 as the X-axis.
- \* Permanent oscilloscope trace records are readily available with the furnished bezel adaptor and scale illuminator when using a camera.
- \* A newly designed blanking circuit permits clear and clean trace observations for signals with a sharp risetime.
- \* Extensive application of ICs has simplified circuitry and improved instrument reliability.

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MONEY ORDER FOR IMMEDIATE  
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# AR SHOWCASE

## A True ZL Repeater Story



By Fred Johnston ZL2AMJ  
From Break-In June 1982

### A NEW IC740A FROM ICOM

It is with pleasure Vicom International announce the release of an addition to the Icom family of HF transceivers.

The IC740A has all the well known features of the IC720A and IC730 but has added capability and flexibility. It is the big brother of the IC730, orientated toward a base station usage, as it has built-in features which are normally expensive options in other models.

Features included in the IC740A are 160 metres, continuously adjustable AGC, continuously adjustable noise blanker, notch filter on receive, standard IF shift and pass-band tuning, squelch on sideband and CW and FM.

With an optional FM module the FM 10 metre band can be worked. There is also an optional internal power supply and toward the end of the year an optional AC power supply will also be available.

The IC740A will be available in early October and all enquiries may be addressed to Vicom or any of their authorised agents.

### GROUND INDEPENDENT MOBILE ANTENNAE FROM SCALAR

UHF and VHF ground independent antennae are designed for use on vehicles where a standard whip antenna is not practicable because either a ground-plane is not available or is insufficient or if there are roof-top obstacles such as pack racks, ladders or beacon lights.

These antennae also overcome the necessity for drilling holes in the roof as they are specifically designed for fitting to the guttering, boot lid, ski bar or, on larger vehicles, the wing mirrors.

Two models are available, the GRH which covers frequencies 144-174 MHz and the GRN for 450-520 MHz. Both have a significant performance gain over quarter-wave length whips mounted in the same positions.

**CONSTRUCTION:** The GRN-1 utilises a fibreglass radome with additional protection of the stainless steel spring and the GRN-2 and GRH have a heavy duty coil section and stainless steel whip as a radiator.

These antennae are field tunable to frequency and are ideal for marine application or for amateur use on the 2 metre and 70 cm bands and are available from all Scalar offices in Melbourne, Sydney, Brisbane and Perth.

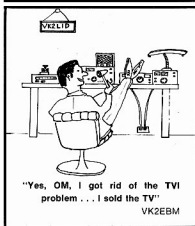
### ECONOMY SCANNER

The new Realistic "PRO-2009" scanner receives your choice of eight frequencies in the Australian low VHF band (66-88 MHz), amateur 2m band (144-148 MHz), VHF high band (148-174 MHz), amateur 70 cm UHF band (410-450 MHz) and commercial UHF bands (450-470 and 470-512 MHz).

Crystals are not required, instead frequencies to be listened to are keyed in on its calculator-like keyboard, and are then picked up by its built-in microprocessor. A nine volt battery backs up the scanner's "memory" so the programmed channels are not lost when the unit is disconnected from the 240 volt mains.

The scanner also has the ability to hunt for unknown channels with a built-in "search" feature. The user can key in a starting frequency and let the scanner search upwards to the end of the band for active channels.

For further information contact Tandy Stores and their nationwide dealers. ■



Repeater stuck on transmit . . . strong signal on input . . . "Happy Flyers" DF gear brought into use . . . bearing taken . . . move to new site . . . cross-bearing taken . . . motor to intersect of bearings . . . park . . . look about . . . looks like a radio amateur's house . . . untidy dipoles . . . monitor on hand-held . . . excessively strong signal . . . knock on door . . . hear the knocks coming back from the speaker in the hand-held! . . . obviously the house! . . . no one home . . . call on neighbours . . . phone the house . . . hear the telephone bell ringing in the hand-held! . . . neighbour tells of a relation of the occupant down the street . . . phone relation . . . time of return of occupant and present whereabouts not known . . . house on market . . . suggests use of land agent's key to gain access . . . call on land agent . . . get key . . . return to premises . . . enter . . . disable transceiver . . . looks like a fault in mike pressel switch . . . leave note at rig . . . leave another note in letter-box . . . return key to land agent.

The later explanation by the amateur concerned was that the rig (a hand-held) was put on to charge during a shopping visit. Moral of story: Don't make work for others.

Check that your gear is NOT left on transmit;

Remember that pressel switches, extension mike leads, and so on, can develop faults;

Expenses incurred in this DF activity could be reasonably claimed against the offender — or a donation to club funds could be expected in lieu.

A simple cure would be to chop the coax at the antenna — but respect for an expensive rig and possible damage led to the time-delaying key-finding cure. Every user of a transceiver carries a responsibility to NOT lock-up a repeater.

CHECK, CHECK, CHECK, This is a warning. Don't be next! ■

## CHANGE OF ADDRESS

If you have changed your address or if you intend shortly to change address —

**PLEASE**

Notify the Executive Office as early as possible:

Do not leave this to be done when you pay your subscription at the end of the year.

**EXECUTIVE OFFICE**

**P.O. Box 150, Toorak, Vic. 3142**



Journalist for the month:

Jenny Warrington VK5ANW  
59 Albert St., Clarence Gardens, 5039

## OOPS

Well, no one is perfect! I was very pleased to receive a number of complimentary remarks on my first column, but the one criticism I received was well deserved. I wrote about the WICEN "boys" and was smartly reminded that here in VK5 we have two WICEN "girls". Janet VK5NEI and Marlene VK5QO are both active members and can be heard regularly on the weekly nets. Sorry, girls, I should be the last person to forget the YLs.

## HISTORY

The upsurge of interest in things historical is proving to be infectious and Clarry VK5KL is one of those to have caught it, in fact at the time of writing Clarry looks like being a strong contender to win the "Name of the Presidents" competition. Tom VK5TL, George VK5RX and Shep VK5DC are amongst the "Old Timers" who have had the foresight to put their early memories down on paper. I find it very sad that so much has already been lost to us for ever. Amateurs are only mortal (although some of them may try to prove otherwise), so act now! If you have items that are of historical interest, particularly papers and photographs pertaining to Amateur Radio, make sure that your next-of-kin know which they are, so that if you don't want to part with them at present, they can be ear-marked for the WIA, and won't end up in the incinerator. Brian Austin VK5CA has been having a great deal of success in contacting the relatives of some of our earliest Divisional Councilors. We have been able to borrow and copy early papers and photographs that would otherwise have been unavailable to us. Hopefully much of this will be published in future volumes of the WIA Book.

## TROPHY

Dick Baty VK5MD (formerly VK5MH) has donated his 1934 Fisk Trophy to the Division, and we will be pleased and proud to display it in the headquarters building. The trophy was for a 6-stage relay contest, the message was apparently passed from State to State and I think it eventually had to return to the originating station. I can't for the life of me see how one scored the thing or how they decided who had won. If there is anyone around who still remembers, perhaps they can explain it to me!

## OUT WITH THE OLD ED!!—

### WHERE IS THE NEW??

The last issue of our local Journal was the final one to be edited by Murray VK5TC. During the time Murray was the Editor, the Journal has improved out of sight, particularly with the photographs which Murray travelled far and wide to take. Thanks, Murray, for all the time and effort you put into it, and we hope that we shall soon be able to name a new editor — intending

applicants PLEASE contact your Councilors NOW!

## FORTHCOMING MEETINGS

28th September: Peter Brooks and Colin Ralph (VK5KCR), of Mac Audio Consultants, will speak on "Audio and Psycho-acoustics".

26th October: Display of Member's Equipment.

## INTRUDER WATCH



**Do you know why it is essential to report intruders on your bands? If not, consider Regulation 342 of the ITU International Radio Regulations:**

*342: Administrations of the members shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations given in this Chapter or the other provisions of these Regulations, except on the express condition that harmful interference shall not be caused to service carried on by stations operating in accordance with the provisions of the Convention and of these Regulations.*

Harmful interference is defined by Regulation 163 as:—

*163: Harmful interference . . . seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with these Regulations.*

What this means is that the Russians, Chinese or any other state can put its various services on any frequency it chooses, provided that it doesn't interfere with the official user of that frequency. Moreover, an intruder is not causing harmful interference within the meaning of Regulation 163 if there are no complaints!

The other "catch 22" in this situation is that the state allowing the intruder to operate on "your" bands can over a period of time claim that frequency for his own exclusive use on the basis that the frequency is obviously not being used as there have been no complaints of harmful interference.

There are an ever increasing number of intruders slowly but surely taking over "your" bands and, as sure as day and night, you will lose them eventually. So don't rely on other people to report all the intruders that you hear, they might be relying on you to report them. But, why worry, there is always UHF CB.

From VK1 Division



David Johnston VK3YWZ  
62 Naples Road, Mentone, Vic. 3194

This month I am presenting extracts from the Annual Report of the Council for the year ended May 1982, tabled by Council's then Immediate Past President, Alan Noble VK3BBM.

## MEMBERSHIP

Although current VK3 membership fees appear higher than other Divisions, there are additional members services available within this Division.

All inward and outward QSL cards are handled free of charge through the Bureaux. Country members enjoy the extra service of a free posting of inwards QSL cards every three months. 20,000 unclaimed QSL cards have been transferred to the rooms from the QSL Bureau.

In Victoria the pensioner membership rate is available to people receiving small fixed incomes and superannuation which may be less than Government pensions. It is also available to any member over 65 who elects to pay the reduced fee.

The Division pays for licences, land rent and power costs for each repeater licensed in the name of the WIA. In addition, we are the only State to provide insurance cover on equipment and personal accident, and third party cover for members while engaged on repeater, WICEN or other official WIA business.

The following services are also available exclusively to members of the Institute: Disposals, library facilities and copying services, book purchasing and support with applications for antenna masts. Victoria has the largest membership of any State with 1,971 members. That is 43 per cent of the total number of licences issued by DOC in Victoria.

## RESOURCES

The financial position of VK3 Division is in line with forecasts with a surplus income of \$11,729 as at 31/12/81. Current liabilities are at a low level, particularly with the payout of the mortgage on Brunswick Street. Recent rises in interest rates prove the wisdom of this move.

The main assets of the Division are properties at 412 Brunswick Street, Fitzroy, and a lease over a double block of land at Bendigo. The Bendigo property contains an antenna tower and a Nissan hut which the Midland Zone has put to good use for its meetings.

Improvements to the rooms in Fitzroy include a security room to provide working space for the Secretary and for the Division records, including some new record systems which will permit better management facilities for the members.

The rooms have again been open from 10 a.m. to 3 p.m. each day thanks to the dedication of a team of volunteers. This team handles the day-to-day enquiries received from all over the State and provides a direct contact point for all members. All

**JOIN A NEW MEMBER NOW!**

orders for books are handled by the team, including packaging for despatch by post.

The QSL Bureaux have been very busy throughout the year with a major impediment to the smooth running of the inwards QSL Bureau being the large number of cards remaining uncollected. The outwards Bureau has continued to provide handling of cards to rarer destinations on behalf of smaller States, particularly Tasmania.

#### COUNTRY MEMBERS

Council is pleased to note an increase in activity in most country areas over the last 12 months. The North West Zone, despite its geographic isolation, continues to show keen interest in activities, and has a particularly strong WIGEN group.

The North East Zone, reactivated in 1980, is going well, with some particularly active members. The East Gippsland Zone appears fairly quiet, while the Eastern Zone has had a busy time this year.

The Western Zone appears to have some problems due to the "peppering" of its members over a large area of the State, but seems to meet most of its needs under the auspices of various active groups. Any recommendations from responsible groups for additional improvements will be welcomed by Council.

Most zones have participated in the zone net commenced in the last twelve months. The net, on Sundays at 1000 UTC on 3.610 MHz, will enable better communications between zones and with Council, if all appropriate support is given.

It may not be known generally that country zones receive a rebate of members' fees on a per capita basis. In addition, a number of country projects are financed by the Division either wholly or in part. Council has always been most sympathetic to the needs of the country member and will continue to support their activities.

Indeed, during the year a number of visits by various members of Council were made to country centres. Council attaches great importance to these visits and encourages country members to take full advantage of them.

#### AND ON THE AIR...

This year has seen some unfortunate events on the repeater scene. VK3RMM (Mt. Macedon) suffered from ILLs, including a major power supply problem. RML (Mt. Dandenong) was QRP for some time due to a weakness in another services equipment, as well as other minor problems.

RGL (Geelong) suffered a spate of thefts, including antenna, coax and filters. RBA (Ballarat) was taken out of service for transmitter maintenance and modifications, and subsequently the receiver was removed from service for a major redesign.

The Division obtained a site on Mt. Wombat for RGW, which is seeing sterling service, and RMA has received approval for a QSY from channel 7000 to 6800 to avoid QRM involving RNE, RGL and VK5RAD.

The beacon RTG will shortly be relocated in Dandenong, after its successful QSY to 144.430 MHz. It is expected also that RWU will relocate shortly to Mt. Wil-

liam. RGU at Carrarung came into operation, as did RWI, the portable WIGEN UHF repeater.

Recent town planning legislation mooted for antenna masts over 8 metres high, or antennas over 3 metres in horizontal dimension, resulted in representations to the Minister for Planning. The Institute was invited to take a lead role in developing guidelines on this matter.

The Division is still conferring with the Municipal Association of Victoria as a result of various papers submitted. Assistance has also been given to amateurs making application for erection of antenna masts, as well as representations to the Town Planning Appeals Tribunal on behalf of members. So far all appeals have been determined in favour of the amateur.

To quote Alan Nobles' closing remarks, "This year the achievements of the Division have again rested on the shoulders of a few. Those few have families like you do, they have other commitments like you do. Will you make an effort in 1982-83 to do your bit so that the words 'What the heck with Vic. Div.—it doesn't do anything anyway are only heard from those who are not in touch?'"

Copies of the complete Annual Report have been sent to all Divisions and are also available from the Institute rooms at 412 Brunswick Street, Fitzroy.

Members are reminded that ALL communications for Victorian Division except renewal of subscriptions should be sent to "The Secretary, WIA Victorian Division, 412 Brunswick Street, Fitzroy 3042". The telephone number is 417 3535. ■

#### WIA VICTORIAN DIVISION FORWARD PLANNING

A meeting of INTERESTED FINANCIAL members of VK3 will be held on Saturday, 25th September, 1982, at 1.30 p.m.

VENUE:  
412 Brunswick Street, Fitzroy.

SUBJECT:  
*Where do we go from here?  
We must plan for the future.  
It does not just happen.*

Council NEEDS and SEEKS your thoughts, opinions and ideas to enable it to plan ahead in the best interests of AMATEUR RADIO IN VK3.

*This is not someone else's responsibility. He died of overwork years ago. As a member of VK3 this responsibility rests directly on YOUR shoulders.*

*If you cannot attend, put your ideas in writing and forward them to the Secretary.*

73. WIA VK3 Council.

Des Clarke VK3DES.

Secretary. ■

# NEW!

## 2 METRE "STOCKWHIP"



### Communicate with SCALAR

A fold away, flexible dipole antenna. Enables you to extend the range of your 2 meter hand held transceiver... At home, in the office, camping, caravanning, — all sorts of places!

You replace the transceiver stubby with the Scalar "Stockwhip" — hang it up by the convenient nylon loop — and listen to the improvement.



#### SCALAR GROUP

20 Shelley Ave.  
Kilsyth 3137  
VIC. 725 9677  
N.S.W. 502 2888  
QLD. 44 8024  
W.A. 446 9177

# VK2 MINI BULLETIN

Athol Tilley VK2BAD  
PO 166, Parramatta 2150



NOTE OUR NEW  
POSTAL ADDRESS:

PO BOX 1066,  
PARRAMATTA 2150

OUR OFFICE IS NOW  
LOCATED AT:

109 WIGRAM STREET  
PARRAMATTA

PHONE: (02) 689 2147

LISTEN TO BROADCASTS  
FOR FURTHER DETAILS

## COUNCIL REPORT

Divisional Council met on the 9th of July, this being the last meeting to be held at 14 Atchison Street, Crows Nest. All future Council meetings will be held at the new headquarters of the NSW Division at 109 Wigram Street, Parramatta.

Council noted that three positions existed within the Division for volunteers (see August AR and this month).

Twelve new applications for membership were received and accepted.

The move of the Divisional Office to Parramatta was discussed and Athol Tilley VK2BAD was appointed Property Officer for the new premises. Designs for the office and store room partitioning as well as the combined library/meeting area were discussed and Council authorised an expenditure of \$16,000 for this work. It was decided that the office would not be open until this work could be completed, but to maintain member service, all mail orders and enquiries will be regularly processed.

It was resolved that the personal Morse classes conducted by the Division were to be discontinued, due to the financial loss and low numbers. Council felt that the NSW Division provided adequate alternate avenues for Morse instruction, for example, the nightly slow Morse transmissions on 80 metres provided by the volunteers using VK2BWI, tapes produced by the volunteers from the NSW WIA Education Service and the VHF Morse beacon provided by the Hornsby and Districts Amateur Radio Club.

During the meeting, a presentation was made to two retiring employees. Jean Adams was our cleaner for 17 years, and Virginia Matthews was our Administrative Secretary for 4½ years. Divisional President, Susan Brown VK2BSB, made a presentation to each and spoke on the long and valued service each had provided to this Division. Council recorded its appreciation on behalf of members.



Presentation to Virginia Matthews and Jean Adams at the July Council meeting. Left to right — Back: Peter VK2PJ, Athol VK2BAD, Jeff VK2BYY, Gordon VK2ZAB, Steve VK2PS; Front: Tim VK2ZTM, Virginia, Jean, Sue VK2BSB.

## HOMEBREW COMPETITION

Did you read the item about this competition in the August Mini Bulletin? Remember the closing date, the 30th of November, when your completed and marked entry form must be received by the Division.

## NEXT CONFERENCE OF CLUBS

Now is the time to consider which items you would like discussed at the next Conference of Clubs. These conferences are advisory policy making bodies of the Division and Council has implemented many of the recommendations of previous conferences. Discuss your ideas at your local affiliated club meeting or put them to your club committee.

The next Conference of Clubs will be hosted by the Westlakes Amateur Radio Club at Teralba, near Newcastle, on the 31st of October. Affiliated Clubs are reminded that agenda items must be received by the Division by the 17th of September to allow time for circulation.

## QSL CARDS

Members who normally had their QSL cards sent to and from Atchison Street should have received a letter from the QSL Bureau asking whether they still want their cards delivered to Parramatta. Any member who would like to send and receive their QSL cards via the new office at Parramatta can do so by advising the VK2 QSL Bureau at PO Box 73, Teralba, NSW 2284.

## VK2 SLOW MORSE SERVICE

Marshall Emm VK2DXP, the VK2 Slow Morse Supervisor, has provided the results to date for replies to the questionnaire on page 37 of June AR.

1. Text: Plain — 10 per cent; letter groups and number groups — 0 per cent; mixed letter/number groups — 10 per cent; combinations — 76 per cent; other (QSO format) — 4 per cent.
2. Speed: 3-4 — 5 per cent; 5-8 — 24 per cent; 10-12 — 52 per cent; 13+ — 19 per cent.
3. Status: Prospective Novice — 14 per cent; prospective Full — 48 per cent; Full call — 38 per cent.
4. All sessions should be same format: Yes — 10 per cent; Different — 76 per cent; no answer — 14 per cent.
5. Text should be read back on phone: Yes — 86 per cent; No — 10 per cent; no answer — 4 per cent.
6. Willingness to serve as relief operator: Yes — 38 per cent; No — 29 per cent; no answer — 23 per cent.

Marshall says it appears safe to conclude that people mostly want mixed material in different formats at speeds appropriate to their licence category (or aspirations) and prefer the text be read back on phone. The volume of response was disappointing, but it must be kept in mind that the survey was limited to readers of AR. Most prospective Novices would not be WIA members, so please don't conclude from the above that only 14 per cent of our listeners are prospective Novices.

Why not read June AR and respond to Marshall's survey, help him and the slow Morse service volunteers to help you.

## DETAILS OF CLUBS AFFILIATED WITH THE NSW DIVISION



## LIVERPOOL ADARC

PO Box 690, Liverpool, NSW 2170.

Net: Mondays as 12.30 UTC on Channel 6550, 2m using VK2AZD.

Meetings: 2nd Tuesday of each month at 7.30 p.m. at the primary school, Bigge Street, Liverpool.

Classes: Novice and AOC.

President: Jim VK2CEE. Vice-President: Bob VK2BYF. Secretary: Bruce VK2VRG. Others: Peter VK2YPU, Carl VK2YSX, Dave VK2DPJ.

Magazine: Bullsheet, published monthly. Editor: Bruce VK2VRG.

Field Day: Sunday, April 24, at Fairfield Showground (1983).

## WAGGA ARC

PO Box 71, Koorringal, NSW 2650.

Net: Saturdays at 0200 UTC on 28.490 MHz.

Meetings: Last Friday of each month at 8 p.m. at the Wagga Rescue Club, Bolton Street, Wagga.

Classes: NAACP, between May and November.

President: Jeff VK2KKBK. Vice-President: Alan VK2KAW. Secretary: Russ VK2AZR. Others: Bob VK2DJQ, Barry VK2VDU, Neil VK2YWR/VTD, Peter VK2DUS.

Magazine: QRM, 10 issues per year. Editor: Rex VK2YA.

Repeater: VK2RWG, channel 6750.

Field Day: Hosts SWARS Convention, October 2/3, 1982.

## SHOALHAVEN ARC

PO Box 621, Nowra, NSW 2541.

Meetings: 1st and 3rd Friday of each month at 7.30 p.m. at the corner of Coomea and Birrillie Streets, Bomaderry.

President: Bill VK2BUY. Secretary: Jim VK2AJT. Others: Stan VK2BRZ, Reg VK2EMI, Harry VK2EGH.

Repeater: VK2RSD, channel 7200.

## SWARS CONVENTION

The 30th annual convention of the South-West Amateur Radio Society will be held at Wagga on the 2nd and 3rd of October (the long weekend). The venue is at Borambola Park, 17 km east of Wagga on the Sturt Highway.

## ACCOMMODATION:

On site dormitory type with some twin rooms available, supply own sheets, pillow slips, towels or sleeping bags. There is an enclosed play area for toddlers and the Department of Sport and Recreation will run supervised programmes for children. Tennis courts, swimming pool and parking for caravans are available.

**ACCOMMODATION FEE** (including caravans): Adults \$35.00, children under 16 \$25.00.

**Note:** This is for the complete weekend, including all meals from Saturday morning to Monday morning inclusive.

## REGISTRATION FEE:

\$7.00 per family for weekend or \$4.00 per day.

## CATERING:

Persons requiring casual meals can arrange on site. Persons attending the Gala Satur-

day Dinner ONLY, \$10.00.

## ENTERTAINMENT:

A bus tour of Wagga, Gala Saturday night Dinner, raffles, trading table, trade displays, treasure hunts for children.

## CONTESTS:

Mobile, hidden transmitters on 2 and 10m, scrambles, pedestrian, blindfold, talk-in, quizzes and Morse speeds are all offered.

The convention is being organised by the Wagga Amateur Radio Club and they can be contacted at PO Box 71, Koorringal, NSW 2650, for full details.

## COMING EVENTS

**CLOSE OF AGENDA FOR 7th CONFERENCE OF CLUBS:**

September 17th.

**SWARS CONVENTION AT WAGGA:**

October 2nd/3rd.

**JAMBOREE-ON-THE-AIR:**

October 16th/17th.

**7th CONFERENCE OF CLUBS AT**

**TERALBA:**

October 31st.

**HOME-BREW COMPETITION ENTRIES**

**DUE:**

November 30th.

NSW members and clubs are invited to submit news for inclusion in this column to PO Box 1066, Parramatta, NSW 2150. Items for November AR must reach us by the 24th of September.

Athol VK2BAD.

## MAGAZINE REVIEW



Roy Hartkopf VK3AOH  
34 Toolangi Road, Alphonso 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

**CQ April 1982**

Special Antenna Issue (G).

**CQ May 1982**

AR in the USSR (G). World Countries List (G).

**HAM RADIO March 1982**

Active Mixers (TG). Wave Analysis (G).

**HAM RADIO April 1982**

Active Mixers (P). Inductance Meter (C).

**HAM RADIO May 1982**

Fresnel Zone Plate (C).

**CQ-TV No. 118**

Digitalising Video (P).

**73 MAGAZINE August 1982**

Tibetan Journey (G). 60 MHz Spec. Analyser (C). Squelch for SSB (C).

**QST March 1982**

Alaskan Adventure (G). TVI (P).

**QST April 1982**

300 Ohm Ribbon J. Antenna (C). 6 Metre Xmitter (C).

**QST May 1982**

Inductance and Capacity Measurement (C). Crystal Ladder Filters (P).

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# Historic BY1PK Visit

Kerry Adams VK2BXT (ex VK5SU of VHF fame) recently visited China and was the first Australian amateur to meet the officials of the amateur radio station BY1PK. The meeting lasted 2½ hours on 21st May 1982 at Kerry's Peking Hotel and everything said was translated. Here are some excerpts from Kerry's letter which was dated 6.7.82.

You will appreciate that the meeting was somewhat of an historic nature and of course I was treading very carefully at first until we all relaxed! The three officials took notes from the beginning of the meeting, but I only did this as time went on. In other words, I was trying to be VERY diplomatic!

Readers should re-read the news item that appeared in "AR" April 1982, page 34. This preface from "Wuxidian", issued by Cheng Ping, Secretary-General of the China Radio Sport Association outlines the Association's aims and ideals and the preparations leading up to the activation recently of BY1PK.

Since the "Cultural Revolution" began in 1966 there has been no amateur radio operation in China. BY1PK commenced operations in March 1982, and has since worked some 30 countries with some 350 QSOs. Many VKs have been worked, e.g. on April 14 contact was made on CW with VK9YC and VK3DEU, both on 28 MHz CW.

BY1PK works only CW at present on 40, 20, 15 and 10 metres. 80 metres is seldom used. Best time on 20 or 15 metres is around 08.30 UTC.

Equipment includes an FT107 presented by the President of JARL, a TH6DX antenna, and a general purpose Chinese made receiver.

The officials had met Japanese, American, Canadian and Swiss amateurs visiting China. I (VK2BXT) was the first Australian amateur to meet them.

Preparations are being made for a National Fox Hunting Competition to be held October 5th to 19th this year. A group of Japanese amateurs is to participate in this competition. All events will be on foot and there will be 5 (five) foxes. Boys enter 5 fox hunts, girls and children 4 fox hunts. Points are awarded. Boys' ages range up to 21, the average age being 18 to 19 years. Some men also enter the competition. All participants have to work to find the fox according to "International Regulations". The next International Competition will be held in Bulgaria (LZ). The last competition was held in Poland (SP).

BY is not a member of the international group as yet, but is planning to go to Yugoslavia this year for a different fox hunt competition. It is anticipated that the winner of the competition in Peking in October will be chosen to go to Yugoslavia

to represent China.

I mentioned VHF but this did not produce any reaction so I can only assume that there is no operation on these bands at present. The use of CW only on the HF bands would seem to tie in with the general aims and ideals expressed in the "Wuxidian" preface, January 1982, etc.

Cheng Ping has contributed spare time articles to "Wuxidian" since the 1950s.

1,800,000 plus copies of "Wuxidian" are distributed all over China and abroad each month!

Tong Xiaoyung, who is the head of BY1PK, is responsible for the station's operations and for the training of the several thousand radio enthusiasts in Peking.

NB: Peking is now known as BEIJING in China.

This was my second trip to China in two years, and the meeting with BY1PK took three days to arrange by my friend, who was afraid I might be thought of as a "spy"! Nothing could be further from the truth. The BY1PK boys laughed and said, "But we are all radio friends" when I asked if they wished our meeting to be reported as laid out above. The photo was at their suggestion. Amateur radio IS universal.

You Are Never too Old!!



If you are interested in Amateur Radio but feel you may be too old to study for a licence take a leaf out of Nelson VK4NGE's log book. Nelson passed the Novice examination in September 1981, when he was seventy-five years young and he is so pleased and proud that he intends to pass the AOCPL licence in the years to come.

REMEMBER  
REMEMBER  
REMEMBER



**AX PREFIX**

Don't forget you can use the prefix AX instead of VK for the period

15th AUGUST 1982

to

15th OCTOBER 1982 inclusive

to mark the occasion of the Commonwealth Games in Brisbane.



Left to right — Wu Ai-Ping, interpreter and friend of VK2BXT; Wang Sun, Vice-Secretary-General of the China Radio Sport Association; Kerry Adams VK2BXT; Cheng Ping, Secretary-General of the China Radio Sport Association; Tong Xiaoyung, Head of BY1PK.



## VK4 WIA NOTES

K. B. Pounsett VK4QY  
33 Lasseter Street, Kedron, Qld. 4031

### AX4QCG — THE GAMES STATION

Coinciding with the Commonwealth Games, to be held in Brisbane from September 30th to October 8th, will be the operation of a special station representing the Queensland Division of the Wireless Institute of Australia. You will be able to contact AX4QCG on HF and VHF, to commemorate this very important international sporting event.

Negotiations have been under way for some months and finally the Games Authority has given the green light to operate from a Games venue. It will not be, as was first hoped, direct from one of Brisbane's new sporting complexes, but via UHF link for relay on HF and VHF.

Preparation and final siting are still under consideration at the time of writing. VK4WIA will be giving further details on the Sunday morning broadcasts of frequencies, modes and times of operation. Other Divisional stations will be advised of details also.

### EDUCATING THE EDUCATORS

Having had access to the pass rates of candidates sitting for both the NAQCP and AACP examination, and realising the far from brilliant results in relation to the percentage of sitting applicants, the Council of the Queensland Division of the WIA determined that some effort was required to improve the level of pass rate. As in all Divisions, the tutoring is provided by various club members, usually on voluntary and unpaid basis. On the other hand, the students are those who have a strong desire to achieve, though many have not studied for some period of years.

HOW THEN COULD WE ATTEMPT TO IMPROVE THE PASS RATE OF THESE EAGER STUDENTS?

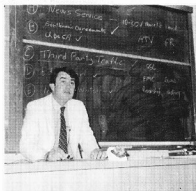
It was decided that we should first "Educate the Educators", that they may not only improve their own knowledge of teaching principles, but also make it easier for their students to gain the necessary knowledge.

We were indeed very lucky to have Ron Smith VK4AGS, a senior science master from Oakley High School, to fall back on for the necessary know-how. Even more important than his wide knowledge of electronics, was Ron's vast experience in the teaching profession.

On July 10th and 11th, a seminar was held at the Toowoomba Education Centre on the Darling Downs. It was assumed that the students attending already possessed the necessary knowledge of electronics, and indeed the great majority were already running classes in their respective clubs. Two very full days were put in by both Ron and his students endeavouring to cover the "state of the art" of teaching.

Of course the time available was insufficient, but a great deal of experience and knowledge was passed on and, hopefully, it will reflect in improved pass rates in the near future. It was intended, at this seminar, to cover only the Southern area of the State, and 16 attendees came from Roma, Dalby, Oakley, Toowoomba, Ipswich, Brisbane, Redcliffe and Sunshine Coast. Later this year we hope to run a similar course in Central Queensland to cater for our fellow educators in the Northern half of Queensland.

If prospective attendees from North Queensland could only read the comments of those who attended in Toowoomba, we doubt if we could accommodate those wishing to attend our next "Educating the Educator" seminar.



The Hon. David Jull, MP, Member for Bowman, and Chairman of the Backbench Communications Committee, addressing the 1982 Radio Club Workshop, Griffith University, Brisbane.

Photo courtesy of Bud VK4QY.

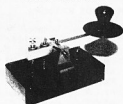
The Wireless Institute of Australia and the Queensland Division in particular, are fortunate in having a friend in the Hon. David Jull, M.P. David has been guest speaker at our annual Radio Club Workshop for several years and this year kindly gave the opening address for the Remembrance Day Contest.

This current session of Federal Parliament is very important to amateurs in Australia, as the new Radio Regulations Bill will be under consideration. Mr. Jull has a vital interest in this Bill and is very aware of our concern in clauses affecting the Amateur Service. The Queensland Council has, through a couple of its members, briefed David on various aspects regarding this important legislation.

The Council and members of the Queensland Division would like to thank David for his co-operation and the friendly way in which he has received our requests, arguments and complaints.

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# VHF UHF - an expanding world

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50.008	JA2IGY	Mie
50.098	KH6EQI	Pearl Harbour
51.022	ZL1UHF	Auckland
52.013	P29SIX	New Guinea
52.150	VK5KK	Arthurlon
52.160	VK0WW	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHP	Palmerston North
52.300	VK6RTV	Perth
52.320	VK6RTT	Carnarvon
52.330	VK3RGG	Geelong *
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.400	VK7RNT	Launceston
52.420	VK2WI	Sydney
52.425	VK2RGB	Gunnedah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.510	ZL2MHF	Mt. Climie
53.000	VK5VF	Mount Lofty
144.400	VK4ART	Mt. Mowbulla
144.420	VK2WI	Sydney
144.430	VK3RTG	Temporary site †
144.475	VK1RTA	Canberra
144.480	VK8VF	Darwin **
144.550	VK5RSE	Mt. Gambier
144.600	VK6RTT	Carnarvon
144.800	VK5VF	Mt. Lofty
144.900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
147.400	VK2RCW	Sydney
432.410	VK6RTT	Carnarvon
432.440	VK4RBB	Brisbane
432.450	VK3RMB	Mt. Bunningyong

\* Indicates the beacon is again operational.

† Indicates the beacon is again operational but from a temporary site whilst a permanent site is found.

\*\* First time listing. The beacon operates continuously with 8 watts output.

## SIX METRES

From QST July 1982 comes some details of the DXpedition of Jim W6JKV from various areas in the South Pacific. Between 2nd and 5th April Jim operated as 3D2JT from Fiji, where he completed a total of 625 QSOs to 20 countries on four continents. Worked were 73 W6s, 19 W7s and 20 W5s. In addition, 443 contacts with Japanese stations were logged. From A35JT, where he held forth from 8th to 14th April, the box score was equally impressive. From that QTH 880 QSOs were made to 23 countries on five continents. W6s accounted for 193 exchanges, 86 W5s, 59 W7s and 4 W4s. Again, the JAs were very much in evidence, producing 469 of Jim's Tongan contacts. The highlight of that operation for him was contacting

5Z4YV in Kenya, on two successive days, via the long path to the east. QSLs of the quality exhibited by the C5AEH cards are promised.

While on the subject of quotes from QST, Bill W3XO, who conducts the columns for "The World Above 50 MHz", seeks an answer to a problem which has also plagued me for some time. Bill is anxious to update the world 6 metre standings box, also for two metres. His and my problems are in getting the relevant information to be able to show the true state of affairs. Some operators have been good enough to send me details of their stations' QSOs, but I know of several Australian operators who have worked countries in excess of those already on hand, but it is near impossible to get the required information. Bill has the same problem. I would like to help Bill and no doubt he would like to help me. If you have a reasonable score of confirmed countries on 6 metres will you send a list showing the call sign and country of the stations worked, date and time worked, signal reports, QSL information, any other relevant details. In this way we may be able to start the Australian Box on 6 metres and, in so doing, provide some copy for Bill, as I am sure there are some VK operators with tallies quite a bit above some of the W stations!

## 6 METRES WITH VK5KK

Once again this month there have been quite a few Sporadic E openings between VK2-4, VK3-4 and VK5-2, 4, 6. On 11/7/82 from 0330 UTC to 0445 UTC open from Northern VK4 to VK2 and VK5. Signals into VK5, at least, were 59. For three days (20th, 21st and 22nd) the band was open to Brisbane in the afternoon although very little amateur activity (just good Channel 0 reception!!!). Also other sound frequency offsets audible at different times. Bob VK5ZRO reported that on 21/7 Channel 0 Brisbane was almost snow-free at 1000 UTC. On 24/7 band open from 0304 UTC to 0400 UTC to northern VK2 from VK5. VK2DDG worked VK5NZ, VK5ZDR and VK5ZRO for half an hour at 59+ signals. Gerry V5AGM copied the Gunnedah 6 metre beacon on and off during the same day till 1330 UTC! Similarly Don VK5ZRG watched Channel 0 till midnight local time! With all that something had to be brewing for next day. On 25/7 from 0221 UTC till 0315 UTC the band opened between VK5 and VK6. Bob VK5ZRO worked VK6s, RO, ZWH, VP, ZPG, HK and WD. Other VK5s working included VK5NZ, RO, AGM, ZDR and ZMJ. Most signals were at least 55. VK4RO worked VK6RO on 28 MHz but I do not know whether they made it on 52 MHz.

There have been other openings else where (VK2DDG reported ZL TV on 24/7) that no doubt have been missed by ALL, just going on the above activity. With such strong signals is this the return to Sporadic E generally seen during the lull of sunspot cycles? Seeing that several solar flare ups occurred during July and the Solar count was on the way up at the end of the month, don't give up yet. I doubt very much that we have seen the last of Cycle 21, who knows we may yet get 50 MHz in time to work something!

While on the subject of 6 Metres, no doubt you are all aware of the intended future of Ethnic TV in Australia. By 1985 all capital cities and several larger regional cities will have transmitters carrying programmes on the Channel 0-28 network. Adelaide most probably will see Ethnic NT in late 1983, however here at least several news sources seem to indicate that it will be UHF only. All very nice but that doesn't help anybody in the Sydney or Melbourne areas with the current dual-channel system. Let's hope that that situation changes and that the future ten city and country centres that get Ethnic TV don't turn up on Channel 0. I think it has all been said before.

## 2M AND ABOVE WITH VK5KK

Mid-winter Tropo DX is still around despite cold weather, lack of activity or whatever. On 27/6 there were some mild conditions to the SE from Adelaide. Chris VK5MC was peaking to 57 at 1030 UTC working Des VK5ZO at Mt. Barker on 144.1 MHz. VK5CK worked VK3BHS (Stawell) at 1100 UTC on 144.05 MHz. VK3BHS was only just audible at this QTH. More locally I could hear key clicks from VK5VF beacon (on 144.8 MHz down to 144.2 MHz). Not bad seeing I am 130 km away!!! I do admit, though, this is apparently no news to anyone in Adelaide!

Unfortunately I am presently shifting QTH about 200 metres up the road (about another 12 metres ASL) and half my antennas haven't found their way here yet! On 24/7 VK5s AIM, KEN and KLZ went portable to Black Top Hill (above Elizabeth) with 432 MHz SSB. Experimenting with a yagi type antenna and a helically wound beam, they found the latter antenna to be not as good (to what degree I am not sure) on the 150 mile path to Don VK5ZRG at Whyalla. Probably at that distance, I would think, no polarity changes during fading would be severe enough to be favouring the circular antenna. VK5ZRO suggested that perhaps the wrong thread was in use and the addition of a washer could help! One more item concerning, this time, a new repeater. The Cowell repeater is now in service on Eyre's Peninsula. Channel 6800 (what else . . . Channel 4).

Mark VK5AVQ writes that the 436.525 MHz repeater will soon be issued a licence, but at this stage the exact location is yet to be finalised. Also, at the recent Mt. Gambier Convention, it would seem that the VK5AVQ/VK5CK team took out the trophy for VK5; a good time was had by all who went this year. Mark was disappointed not to see Eric VK5LP, especially around the time of judging the home-brew contest! He hopes to have 2 x 14 element antennas installed on 432 MHz soon.

That's it for this month, news is a little bit scarce but that probably is more a reflection on the amount of activity in my shack. Maybe when all my antennas are up again (got to get them up before Eric returns or else) things will improve. I have been in regular contact with Eric and no doubt he will fill in on his adventures.

73. David VK5KK.

## BACK TO ERIC AND TWO METRES TO JAPAN

Steve VK4ZSH has written with details of his special DXpedition through northern Queensland and the Northern Territory. (Refer August column.) He adds a note to the effect that the Queensland openings are all nearly perfectly north-south paths, within 1/2°, but this situation was deliberate, as due to a shortage of time he chose the paths to be that way. Equipment used on 2 metres was an IC 251 with a KLM70 amplifier giving 60 watts output, 1 dB feedline to a 10 element yagi up 4.5 metres, powered by dual 68 AH batteries under the bonnet, so as to allow for light and fast travel when needed. The events cost \$1,400 for 3,200 litres of petrol to take Steve 22,000 km (equal to more than half way around the world). He ran out of petrol once, got wet bogged once, hung-up on the diff. once, flattened the batteries once, bent the exhaust system, ripped a hole in the bottom of the car, lost one windshield, one spotlight, three tyres, had an unforgettable encounter with a road-train, discovered one (possibly unforeseen) meteor shower, numerous failures, breakages and losses, all minor to the car. OTHER THAN THAT THE TRIP WAS UNEVENTFUL!

Steve found the greatest help was the Japanese "Pocket Bell" service signals, from JA2DDM. These service signals are radiated with 250 watts of power to vertical antennae, from 100m towers, located on hills and mountains near various cities which are listed by numbers. They give 360° coverage and continuous operation. They are to be found with 10 kHz spacings between 142.120 to 142.300 MHz and 146.760 to 146.850 MHz. These paging signals were always the first and last signals during an opening probably because of their good take off and considerable power, as most JA amateurs only run 10 watts. The paging signals are very easy to pick from local signals because of their deep, rapid flutter, fading and heavy dooper warble which gives an eerie, ghost-like sound.

The following is an outline of Steve's contacts, and all credit to him for making the effort. 12/4/82: QTH Darwin 1215-1420

UTC, 34 JA6, 6 JA4, 1 JA3. 14/4: Roper River Bar, 450 km SE of Darwin, 1100-1342 UTC, 6 JA5, 2 JA4, 10 JA3, 1 JA2, 1 JA0, first JA2, JF2BJC, first ever JA0, JA0ZUN (Club Station). 17/4: Same location, 1116-1304 UTC, 5 JA2, 18/4: Same location, 1033-1341 UTC, 1 JA3, 9 JA2, 19/4: Borrooloola, 700 km SE of Darwin, 1043-1115 UTC, paging only 146.770, 146.780, 146.790, 146.800, 146.810, 146.820 MHz.

Shifting now to Queensland, on 27/4 from McKinlay, 100 km SE of Cloncurry, 1040 to 1115 UTC, paging only 146.760, 146.780, 146.810 MHz. 4/5: At Karumba, 500 km west of Cairns, 1032-1107 UTC, 4 JA1, JA1RJU Kazu, first VK4 to JA and first JA1 to VK QSO. 6/5: QTH near Bang Bang, 110 km south of Karumba, 1034-1125 UTC, 18 JA1, 1 JA9 (portable JA1). 7/5: Near Dougall, 250 km south of Karumba, 1047-1057 UTC, 1 JA7, 2 JA1, JA7OXL, Iwanuma City, first ever JA7 to VK — distance 6,430 km. 8/5: Cloncurry, 100 km east of Mt. Isa, 1007-1047 UTC, 4 JA7, 16 JA1, JA7GB, Koriyama City, 6,440 km, JH7OGY, Iwanuma City, 6,530 km. This latter contact needs official confirmation, but looks like a new VK 144 MHz distance record being over 6,500 km.

Congratulations to Steve for a fine effort. He is well deserving of that record, and I have a feeling that this may not be the last time we hear of such exploits from Steve.

Apparently accompanying Steve on this epic journey was Al VK4KAZ, who had contacts as follows: 12/4/82: Darwin, 1215-1335 UTC, 4 JA6, 4 JA4, 2 JA3, 14/2: Roper River Bar, 1123-1339 UTC, 9 JA5, 2 JA4, 1 JA2, 1 JA0, 17/4: Roper River Bar, 1116-1259 UTC, 4 JA2, 18/4: Roper River Bar, 1025-1320 UTC, 1 JA3, 14 JA2. In addition, Al did some operating on 52 MHz as follows: 3/4: Mt. Isa, 48 JAs. 4/4: Tennant Creek, 82 JA, 11/4: Darwin, 25 JA, 13/4: Katherine, 43 JA, 14/4: Roper River Bar, 22 JA, 15/4: Borrooloola, 32 JA, 16/4: Borrooloola, 84 JA, 18/4: Roper River Bar, 39 JA, 21/4: Karumba, 22 JA.

Collectively, it looks as though the two boys had a fairly busy time, using the day-time to keep moving or making repairs, and operating to JA at night. Still, that would keep them out of mischief!

## ARRL EME CONTACT

Chris VK5MC has sent some details of operating during the contest over the weekend of 1st and 2nd May, when conditions were quite good compared to the April weekend which was upset by auroral disturbances and storms in the northern hemisphere.

Stations QSO'd by VK5MC, who was using a 20 foot dish antenna on 432 MHz, were W6ABN, OK3CPT, JA9BOH, ZS6NG and VK3BKF. On 1296 MHz QSOs were made with ZS5JJ and VE7BBG.

Les VK3BKF had QSOs with W9AB, JA9BOH, YU1AW, ZS5JJ and VK5MC. Les is using an antenna system of 4 loop yagis on 432 MHz which are erected in the back yard whenever he uses his EME system.

The contact between VK3BKF and VK5MC is the first VK to VK 432 MHz EME contact. Some interesting propagation

effects are being noticed on tests between the two stations. During the contact many other stations were heard by both stations and QRM was quite severe during the European window!

The good news from Lyle VK2ALU is that the Dapto 30 foot dish has been mounted at a new location and he expects to be operational on 1296 MHz in a few months.

## SNIPPETS

The "Special Event" call sign prefix AX may be used by Australian amateurs between 15th August, 1982, and 15th October, 1982, in lieu of VK during the period of the Commonwealth Games.

Don't forget, satellite enthusiasts, Wednesdays are "off-days" for all satellite operation, as during this period the batteries are given a rest and various commands are executed.

My "Around Australia" trip continues and I write my portion of these notes from the Kakadu National Park in the Northern Territory. I know there will be attendant postal problems from such an isolated area so the editor will probably be most annoyed! However, I was very pleased to finally catch up with Graham VK8GB in Darwin with only an hour or two to spare before he sped off to Alice Springs by plane. However, it was a long enough meeting over a good meal to discuss various aspects of VHF operating, propagation, etc. And of course a look at the mouth-watering QSL cards from about 35 countries on 6 metres and a drawer full for 144 MHz contacts with Japanese stations. At present he finds little incentive to work on 70 cm, but perhaps he may find a path exists between Darwin and John VK6GU at Wyndham. Certainly such a path should exist on 144 MHz.

There is little other activity on VHF in the north-west of WA or the NT. Skeds have been maintained twice a week on Wednesday and Sunday nights with David VK5KK on 7 MHz, this being the band giving the best results for the time of day and time of year. 3.5 MHz is difficult because of the great distances and the antenna system at my end, only a mobile whip. 20 metres has very little to offer at 1130 UTC, so we have settled for a position somewhere between all the Asian stations and general rubbish and commercials, mostly between 7.110 and 7.120 MHz. Signals have been variable, but on quite a few occasions VK5KK has been 5 x 9 here and my signal at the other end up to 5 x 7 from the FT7B. So we do make it!

That's all the news that can be mustered at this distance, my mail is still being forwarded from home, so I am getting the letters you have continued to send, and the information contained therein is being used.

Closing with the thought for the month: "The rain it raineth on the just And also on the unjust fellow, But chiefly on the just because The unjust steals the just's umbrella."

— Charles Bowen.

73. The Voice in the Hills. ■



# CONTESTS

Reg Dwyer VK1BR  
Federal Contest Manager  
PO 236, Jamison, ACT 2614

## CONTEST CALENDAR

### September

- 5 BULGARIAN CW
- 11-12 EUROPEAN PHONE
- 11-12 G. QRP DAY
- 18-19 VK NOVICE CONTEST (CONTEST CHAMP QUALIFIER)
- 18-19 SCANDINAVIAN CW
- 25-26 SCANDINAVIAN PHONE
- 25-26 DELTA QSO PARTY

### October

- 2-3 VK/ZL OCEANIA PHONE
- 9-10 VK/ZL OCEANIA CW
- 10 RSGB 21/28 MHz PHONE
- 16-17 JAMBOREE-ON-THE-AIR
- 16-17 ARCI QRP CW
- 17 RSGB 21 MHz CW
- 20-21 YLRL ANNIVERSARY CW
- 30-31 CQ WW DX PHONE

### November

- 3-4 YLRL ANNIVERSARY PHONE
- 13-14 EUROPEAN RTTY
- 13 ALARA YL PHONE/CW
- 27-28 CQ WW DX CW

## THE 24th SCANDINAVIAN ACTIVITY CONTEST 1982

### CW:

September 18th, 1500 UTC, to September 19th, 1800 UTC.

### PHONE:

September 25th, 1500 UTC, to September 26th, 1800 UTC.

### LOGS TO:

EDR Contest Manager, Leif Ottosen OZ1LO, Bankevejen 12, Kong, DK-4750 Lyndby, Denmark.

## GENERAL RULES

### OBJECT:

Stations will try to work as many Scandinavian stations as possible.

Scandinavian stations are defined by the prefixes as follows: LA/LB/LG/LJ (Norway), JW (Svalbard and Bear Is.), JX (Jan Mayen), OF/OG/OH/OI (Finland), OH0 (Åland Is.), OJ0 (Market Reef), OX (Greenland), OY (Faroe Is.), OZ (Denmark), SJ/SK/SL/SM (Sweden) and TF (Iceland).

### CONTEST CALL:

CQ SAC on CW and CQ Scandinavia on Phone.

### BANDS:

3.5-7.14-21-28 MHz may be used, but only within the following sub-bands (MHz): CW: 3.505-3.575, 7.005-7.040, 14.010-14.075, 21.010-21.120, 28.010-28.125. Phone: 3.600-3.650, 3.700-3.790, 7.050-7.100, 14.150-14.300, 21.200-21.350, 28.400-28.700. Region 2 and 3 stations may also transmit on their frequencies above 3.790 and 7.100.

## CATEGORIES:

- (a) Single Op./Single TX — all band only:  
Single Operator: One person performs all operating, logging and spotting functions. The use of multiplier spotting assistance or any other form of alerting assistance is not allowed in this category.
- (b) Multi-Op./Single TX — all band only:  
Only one signal allowed at any one time on any band. The station must remain on the band for at least 10 minutes following initial transmission on that band after band change.
- (c) Multi-Op./Multi-TX:  
No limit to transmitters, but only one signal per band allowed.  
Club stations may work only Multi/Single or Multi/Multi.

## CONTEST EXCHANGE:

Consists of RS(T) plus serial number, starting from 001, e.g. 59(9)001. QSOs after 999 are numbered 1000, 1001, etc. Multi-Op./Multi-TX stations use separate serial numbers, starting from 001 on each band. The same station may be worked once on each band. Only CW-CW and Phone-Phone QSOs are valid.

## QSO POINTS:

Two-way QSO with sent and received exchange counts for QSO points.

Non-European stations (DX): Credit logs with one (1) point for every complete Scandinavian QSO on 14, 21 and 28 MHz and three (3) points for such contacts on 3.5 and 7 MHz.

## MULTIPLIERS:

Two-way QSO is valid for multiplier credit, if complete contest exchange is sent and at least RS(T) is received.

Worked Scandinavian call areas may be claimed for multiplier credit (LA1 = LB1 = LJ1 and SM3 = SK3 = SL3, etc.). Portable stations without district number count for the 10th call area, e.g. W4XXX/OZ counts for OZ0 and G3XYZ/LA counts for LA0. OH0 and OJ0 are separate call areas. SJ9 counts for the 9th call area in Sweden. Each multiplier shall not be credited more than once per band. If serial number is not received, QSO counts for zero (0) points.

## SCORING:

Multiply all QSO points by the sum of all multipliers worked on each band.

## LOG INSTRUCTIONS:

Signed original logs (or copies of original logs) must be submitted separately for CW and PHONE. Logs to be filled out in the following order: date and time (UTC), station worked, sent and received exchange, band, multipliers (e.g. OZ4, SM3, OH0, etc.) and points.

## SUMMARY SHEET:

All entrants must submit a summary sheet showing station call sign, category, name of operator(s) and address. Indicate number of QSOs per band less duplicates, number of duplicates per band, number of multipliers per band, QSO points per band and final score.

## MULTIPLIER SHEET:

All entrants must submit a multiplier sheet for each band with more than 200 QSOs.

## DUPLICATE QSO SHEET:

Possible duplicate QSOs must be shown in the log and counted for zero (0) points. Each entrant shall submit a duplicate QSO sheet for each band with more than 200 QSOs. Duplicate sheet to contain worked stations listed, e.g. by DXCC countries and call areas.

## DEADLINE

Logs and accompanying sheets, addressed to the organising League, shall be mailed no later than October 30th of the year of the Contest.

## CERTIFICATES AND PLAQUES:

Top scorer in each country as well as in each US call district, in each category both on CW and PHONE, will receive a Contest Award, provided a reasonable score is made. Depending on the number of entrants from each country, the award of additional certificates will be considered by the Contest Committee.

Top scoring single operator stations on each continent will receive a Contest Plaque, both on CW and PHONE, provided a reasonable score is made.

## EUROPEAN DX CONTEST

### CONTEST PERIODS:

PHONE: 11th/12th September, 1982.

RTTY: 13th/14th November, 1982.

BANDS: 3.5, 7, 14, 21, 28 MHz.

CLASSIFICATIONS: Single Operator-all band; Multi-Operator-Single transmitter.

Multi-operator/Single transmitter-stations are only allowed to change band one time within a period of 15 minutes. A quick band change and return for working new multipliers is allowed.

REST PERIOD: Only 36 hours of operation out of the 48 hours are permitted for single operator stations. The 12 hours of non-operation may be taken in one, but no more than three periods at any time during the contest and have to be marked in the log.

EXCHANGE: A contest QSO can only be established between a non-European and a European station. Exchange the usual five or six digit serial number RTS/RS report plus a progressive QSO number starting with 001. W/K stations in addition give their state (e.g. 599011 MA).

**POINTS:** Each QSO counts 1 point. A station may be worked once per band. Each confirmed QTC — given or received — counts 1 point (see below).

**MULTIPLIERS:** The multiplier for non-European stations is determined by the number of European countries worked on each band. Each call area in the following countries will be considered a multiplier: JA, PY, VE, VO, VK, ZL, ZS, UA90. (See special regulations for RTTY.) Each W/K state will be considered a multiplier.

The multiplier on 3.5 MHz may be multiplied by four.

The multiplier on 7 MHz may be multiplied by three.

The multiplier on 14/21/28 MHz may be multiplied by two.

**SCORING:** The final score is the total QSO points plus QTC points multiplied by the sum total multipliers from all bands.

**QTC TRAFFIC:** Additional point credit can be realised by making use of the QTC traffic feature. A QTC is a report of a confirmed QSO that has taken place earlier in the contest and later sent back to a European station. It can only be sent from a non-European station to a European station. The general idea being that, after a number of European stations have been worked, a list of these stations can be reported back during a QSO with another station. An additional 1 point credit can be claimed for each station reported (Note special regulation for RTTY.)

(a) A QTC contains the time, call and QSO number of the station being reported, i.e. 1300/DA1AA/134. This means that at 1300 UTC you worked DA1AA and received number 134.

(b) A QSO can be reported only once and not back to the originating station.

(c) Only a maximum of 10 QTCs to a station is permitted. You may work the same station several times to complete this quota. Only the original contact, however, has QSO point value.

(d) Keep a uniform list of QTCs sent. QTC 3/7 indicates that this is the 3rd series of QTCs sent and that 7 QSOs are reported.

**LOGS:** It is suggested to use the log sheet of the DARC or equivalent. Send large size SASE to get the wanted number of log and summary sheets (40 QSOs or QTCs per sheet). Use a separate sheet for each band. All entrants are required to submit cross check (dupe) sheets for each band on which they worked more than 200 QSOs. For each duplicate contact that is removed from a log by the checker a penalty of three additional contacts will be crossed out.

**SPECIAL REGULATIONS FOR RTTY:** In the RTTY Section of the EUROPEAN DX CONTEST also contacts between all continents and also one's own continent are permitted. Multipliers will be counted according to the EUROPEAN and ARRL countries list. Contacts within the same continent count a multiplier of one per band (including 80 and 40m). QSO as well as QTC traffic with

one's own country (district) is NOT allowed. SWLs apply to the rules accordingly.

**DEADLINE:** Phone: October 15th; RTTY: December 15th.

#### EUROPEAN COUNTRY LIST:

C31, CT1, CT2, DL, EA, EA6, EI, F, FC, G, GD, GI, GJ, GM, GM Shetland, GU, GW, HA, HB9, HB0, HV, I, IS, IT, JW Bear, JW, JX, LA, LX, LZ, M1, OE, OH, OH0, OJ0, OK, ON, OY, OZ, PA, SM, SP, SV, SJ, Crete, SV Rhodes, SV Athos, TA1, TF, UA1346, UA2, UA Franz Josef Land, UB5, UC2, UN1, UO5, UP2, UQ2, UR2, Y2, YO, YU, ZA, ZB2, 1A0, 3A, 4U1, 9H1.

#### MAILING ADDRESS

WAEC Committee  
Post Box 1328  
D-895 Kaufbeuren  
GERMANY

#### VK NOVICE CONTEST

This contest was originally the Westlakes Radio Club Contest, usually held in September, and is designed to encourage Novices to gain skills in contest operation and to improve their abilities with possible thought to assisting in their upgrading to full call licences. This contest provides excellent opportunities for all Novices to compete on an even footing with all-comers. The majority of points scored are contacts with Novice and club stations and minor points are scored with contacts with full call licences.

The contest will take place from 0800 UTC 18th September to 0759 UTC 19th September, 1982, for all Novice and full call amateurs.

#### OBJECTS OF THE CONTEST

To encourage contest working between amateur stations in Australia, New Zealand and Papua-New Guinea during a 24-hour period with special emphasis on contacts with Novice and radio club stations.

#### STATIONS ELIGIBLE

Only stations in VK, ZL and P2 call areas may enter. No stations outside these areas is permitted to be worked or entered in a log. Except for radio clubs, no multi-operation working is allowed. Stations in your own call area as well as other call areas may be worked.

#### CONTEST BANDS

Only the Novice allocations on 80, 15 and 10 metres may be used. This applies to full call stations as well. No crossband operation is allowed. Contacts should be Phone or CW.

#### CW

CW operation: Maximum speed 10 words per minute.

To encourage the use of CW for the betterment of both Novice and those operators who are not as proficient as maybe they should be, the maximum transmitting speed of CW will be limited to 10 words per minute.

#### SCORING

##### Transmitting:

For contacts with a Novice station — 5 points.

For contacts with a radio club station — 10 points.

For contacts with a full station — 2 points.

#### Listening:

Novice/Novice contact — 5 points.

Full Call/Novice — 2 points.

Novice/Full Call — 2 points.

Full Call/Full Call — 2 points.

Any contact with a radio club — 10 points.

#### CALLING PROCEDURE

Phone call "Call Novice Contest" and on CW "CQN".

Stations may be worked only once per mode per band.

#### EXCHANGES

Phone RS report plus three figures. These three figures may start anywhere between 001 and 999 but when 999 is reached you must start again at 001. CW, RT report plus three figures on the previous basis. Radio club stations will add the letter "C" after the number above.

#### CONTEST SECTIONS

(a) Novice/Full Call Phone.

(b) Novice/Full Call CW.

(c) Listeners.

#### LOGS

Logs must show UTC time, station worked, band, mode, number sent, number received, score claimed and score tally for each page.

A front sheet must be attached showing the following:—

Name of operator, call sign, address, section entered and points claimed.

Logs are to be sent to the Federal Contest Manager, Box 236, Jamison, ACT 2614, and must be post-marked no later than 12th October, 1982, and received no later than 29th October, 1982.

#### CERTIFICATES

Certificates will be awarded to the highest score from Novice Phone, Novice CW, Radio Club Phone, Radio Club CW, Full Call Phone, Full Call CW, Listener Phone and Listener CW.

A trophy to be known as "The Keith Howard VK2AKX Trophy" will be awarded to the entrant with the highest aggregate scores in the (a) and (b) sections and will be held by the winner for a period of 12 months.

The decision of the Federal Contest Manager is final and no correspondence will be entered into.



#### RTTY

According to a RTTY broadcast recently from EMORC sources there appear to be about 170 operators in VK3 possessing RTTY capability. About one-third are on VHF only and about one-fifth or a little less also possess ASCII capability. There could be around 200 RTTY stations in VK3 in grand total as some stations are missing from a list which has been sighted.

#### AMATEUR RADIO IN INDIA

Reading one of the overseas magazines some interesting items caught the eye. "Those who obtained licences from the old Post and Telegraph Department may remember the stern examiner with his Morse code tape receiver and the tool rule with which he used to measure the dots, dashes and spaces." And another quote, "The Indian Telegraph Act, 1885, together with the various Rules framed under it, is the legal framework for the regulation of radio spectrum usages".



# SPOTLIGHT

ON

SWLing



Robin L. Harwood VK7RH  
5 Helen Street, Launceston, Tas. 7250

## TROPICAL BROADCASTING

Over the winter months, many SWLs and DXers have mainly been concentrating on listening to stations on what is commonly referred to as the Tropical Broadcasting Bands. These are the frequencies allocated for broadcasters who are located in tropical areas who find that medium wave fails to propagate well over a large area, especially during daylight hours. Hence, these frequencies are used so that they can cover a wider area and audiences than would be possible on MW.

Here in Australia, many stations in Central and South America, S-E Asia, and Africa can be heard at different times, usually at sunrise/sunset at either the transmitting or receiving location, with the exception of S-E Asia, who are heard only at night time.

Serious DXers throughout the world consider these stations quite a challenge, because of their relatively low power and positive identification is very difficult due to the use of local languages and dialects in their programming. Most Latin stations employ either Spanish or Portuguese exclusively, so the reports must be submitted in the language being broadcast.

## REPORT GUIDES

You will find it almost indispensable to have a Report Guide to assist you with the compilation of foreign language reports. The best I have found so far is the EDXC Report Guide, which shows how reports are written in the main European languages. This can be obtained for \$3 from the Stationery Secretary, Australian Radio DX Club, PO Box 300, Blackburn, Victoria 3130. This is open to members of that organisation. Radio Netherlands has compiled an excellent Report Guide for Indonesian stations. This is obtainable from Media Network, Radio Netherlands, PO Box 1200, JG Hilversum, The Netherlands. I believe that ARDXC also do some Report Guides of their own which are more extensive than the EDXC Guide.

However, the main problem encountered is that these stations have a small staff which is unable to handle or process large amounts of reports. They are mainly concerned with the production of programming for people within their own region and not for listeners in other countries. Where no external service facilities exist, these regional or local broadcasters, being often the only shortwave outlet from that nation, are deluged with reports. Hence, some station managers find DXers' reports are a nuisance.

Despite these setbacks, however, the tropical bands retain their interest, certainly being a challenge. As mentioned

previously, winter time appears to be the best time in SE Australia to listen for these outlets. The prevalence of continuous atmospheric static (QRN) in summer precludes any serious DXing on the lower bands, and many concentrate on higher frequencies at that time anyway.

Another hassle is that these frequencies are also utilised by utility stations on RTTY or CW in non-tropical regions. These do make it very difficult to pull out a rare station in Brazil or Africa. So it is imperative that a good bandwidth filter or Q-Multiplier is added to the receiver to improve selectivity and sensitivity of the tuned circuit. Details of suitable Q-Multipliers can usually be found in ARRL Handbooks, particularly earlier editions.

After picking up one of these stations, the next step for some is getting that QSL card. The WRTX usually does contain current addresses and operational times. Yet there is one publication that is very useful. Called the Tropical Bands Survey, it is published by the Danish Shortwave Club International and is compiled by Anker Petersen, a well known expert on tropical bands DXing. This 28 page offset booklet lists all active broadcasting stations between 2.000 and 5.900 MHz, together with their power and operational hours. The cost is 9 IRCs surface or 11 IRCs for airmail. Usually the Australian Radio DX Club does get in a bulk order and I am sure that they will be getting copies very soon. Write to ARDXC, PO Box 227, Box Hill, Victoria 3128, and enquire.

Incidentally, this Club does specialise in DX from tropical areas and in its July ADXN, Peter Bunn has compiled a current listing of African and Latin stations from listeners' logs submitted to the SW Trail of that publication. Mr. Bunn does have frequent updates on activity within that section from listeners in Australia as well as overseas monitors. The latest subscription price can also be obtained from the above address.

## TROPICAL BAND STATIONS

Here are just a few stations you can expect to hear on the Tropical Bands, together with their times and frequencies. I have mainly concentrated on stations that are well known and comparatively easy to get.

- MHz
- 2.340 Fujian People's Broadcasting Station, PRC. 1300 UTC.
- 3.015 R. Pyongyang, North Korea. FS in Japanese. 1230 UTC.
- 3.031.5 Wonsan Provincial Station, North Korea. 1300 UTC.
- 3.204 RRI Bandung, Indonesia. 1100 UTC.
- 3.265 RRI Gorontalo, Indonesia. 1130 UTC.

- 3.355 R. Noumea, New Caledonia. 0800 UTC. Also 7.170 MHz.
- 3.400 Fujian Front Station, PRC. 1030 UTC onwards.
- 3.560 R. Pyongyang Foreign Service. 1100 UTC.
- 3.779 R. Teheran, Iran. 1930 UTC.
- 3.910 AFRTS Far East Network, Tokyo, Japan. 1000 UTC.
- 3.925 Nat. Bro. Comm., Port Moresby, Papua-New Guinea. 0900 UTC.
- 4.719 RRI Ujung Padang, Indonesia. Easy to hear 1000 UTC.
- 4.920 VLM4 Brisbane, Qld., ABC 3rd Network. 0730 UTC onwards.
- 5.020 Solomon Islands Broadcasting Service, Honiara. 0930 UTC.
- 5.030 R. Reloj Continente, Caracas, Venezuela. Best between 0930 and 1030 UTC.
- 5.095 R. Sutanzena, Bogota, Colombia. 0930 UTC. Check also 5.075 MHz.
- 5.170 Fujian Front Station, PRC. Same as 3.400 and 7.025 MHz.
- 5.950 La Voz dell Nicaragua, Managua. 0500 UTC.
- 6.060 R. Nacional, Buenos Aires. 1000 UTC.
- 6.115 R. Tanpa, Tokyo, Japan, until 1015 then try 6.055 MHz.

The above list is not comprehensive, but will give you an idea. I hope that you have a lot of fun tuning around.

Incidentally, a new station recently opened here in Tasmania — Radio 7RPH, in Hobart. This is the Radio Print for the Handicapped Station on 1.620 MHz from 0700 UTC until approximately 1200 UTC, Mondays through Saturdays. I did notice that one club referred to it as Tasmania's first shortwave station, but strictly speaking shortwave really starts from 3 MHz, but most authorities recognise that shortwave starts from 2 MHz. So 7RPH should be classed as a MW station. It is only fair strength here and not as strong as the similar 3RPH on 1.705 MHz on Tuesdays and Thursdays.

Well, that is all for this month. Until next time, the best of DXing and 73... Robin.

SEPTEMBER 30-OCTOBER 8  
LISTEN FOR

**AX4QCG**

THE GAMES STATION





Mike Bazeley VK6HD  
Federal Awards Manager  
8 James Road, Kalamunda WA 6076

#### AWARDS ISSUED

Awards issued and amendments made up to 10th July, 1982, are listed below. The change around in the top DXCC listings is mainly due to the deletion of VS9K, Karaman Island. For those who are interested, the most wanted countries by our top DXers are (in alphabetical order):—BY, CE0X, HK0 Malpelo, PY0 St. Peter and Paul Rocks, VK0 Heard Island, XZ, ZA, IAO and 3Y.

#### WAVKCA AWARD

Call Sign	Cert.	Call Sign	Cert.
W4PTT	1036	WB1AJG	1046
CK1STU	1037	JJ1RZG	1047
F6DHB	1038	JH8GWW	1048
VE1ACK	1039	JHTBRG	1049
WB2DND	1040	JA1NLI	1050
VE3JPJ	1041	JG1XEZ	1051
KB7SU	1042	G3OLY	1052
KAGALX	1043	WA3HUP	1053
K0R0J	1044		

#### DXCC NEW MEMBERS

Call Sign	Cert. No.	Tally
VK3DMI	289	101
VK3DAK	290	158
VK9NYG	291	121
VK1BG	292	142/140
VK6NID	293	100
VK9ZH	294	105
VK5NOD	295	105

OPEN	Cert. No.	Tally
VK3NQ	209	156

#### HAVKCA (SWL) AWARD

Cert. No.	Call Sign	James Noble
62	L70217	Peter Jones
63	ZL1-261	

#### WAS (VHF) AWARD

Cert. No.	Call Sign	Tally
136	VK2QF (Amendment) 18 Countries	

#### VHFCC AWARD

Cert. No.	Call Sign	Tally
112	VK2QF	113
		VK7JG

#### DXCC — TOP LISTINGS

(All at 275 and over)

Call Sign	Tally	Call Sign	Tally
VK5MS	317/360	VK4PX	297/312
VK4KS	317/349	VK3AHO	293/326
VK6RU	316/362	VK2APK	293/313
VK5AB	314/345	VK4UC	293/306



Nine Dragon Award — for details, refer page 48, August AR

VK6MK	312/350	VK6FS	292/294
VK6LK	309/323	VK3OT	292/293
VK7DK	308/323	VK5XN	289/302
VK3JF	308/320	VK7AE	289/301
VK4VC	308/319	VK3RF	284/286
VK4FJ	306/343	VK3DV	284/284
VK7LZ	306/323	VK6YL	283/284
VK4RF	304/314	VK7BC	280/283
VK6HD	304/313	VK6IR	277/278
VK5WV	303/315	VK2AHH	273/296
VK3AMK	302/312	VK3DU	273/275
VK3AKK	300/302	VK4BG	272/282
VK4AK	299/308	VK5WO	267/285
VK6NE	299/306	VK4DO	261/281

#### CW

VK2QO	310/350	Call Sign	Tally
VK2EO	308/346	VK3YD	281/313
VK3YL	308/336	VK4RF	277/298
VK4FJ	302/345	VK3RJ	261/288
VK3AHQ	298/331	VK6RU	260/300
VK3XB	286/314	VK3NC	260/297
VK2APK	282/304	VK7LZ	253/283

#### OPEN

VK4KS	317/353	Call Sign	Tally
VK6RU	316/362	VK7BC	297/301
VK3YL	316/348	VK4UC	296/310
VK4SD	316/348	VK2SG	295/314
VK4FJ	312/356	VK3OT	295/296
VK6MK	312/350	VK5WO	294/317
VK4RF	312/336	VK3AHO	293/326
VK3JF	311/332	VK3XB	291/320
VK6HD	311/326	VK2AHH	282/308
VK7DK	309/324	VK5RX	281/313
VK7LZ	307/339	VK4BG	279/292
VK4PX	304/323	VK4DP	278/287
VK3AMK	302/312	VK4DO	268/296
VK2APK	300/329	VK3J	268/293
VK3AKK	300/302	VK3NC	261/298
VK4AK	299/309	VK5BO	249/281

#### DXCC — AMENDMENTS

Call Sign	Tally	Call Sign	Tally
VK3AKK	300/302	VK5OU	264/265
VK3DFD	265/266	VK5WV	303/315
VK3DS	211/217	VK6HD	304/313
VK3DV	284	VK6LK	309/323
VK3RF	284/286	VK7DK	308/323
VK4AK	299/308	VK9NYG	129
VK5BO	178		

#### CW

Call Sign	Tally	Call Sign	Tally
VK3AKK	152	VK5BO	162/184
VK3JF	227/243	VK6HD	263/274
VK3RJ	261/288		

#### OPEN

Call Sign	Tally	Call Sign	Tally
VK3AKK	300/302	VK5OU	311/326
VK4AK	299/309	VK7DK	309/324
VK5BO	249/281		



QSP

#### VPS

It is interesting to observe that some 400 licences were listed for amateurs in the Falkland Islands according to the 1982 RA Call Book. This must be the highest percentage of amateurs total population anywhere in the world.

#### DAYTON HAMVENTION

"Made the rounds through the 10 plus acres of flea market and then went inside to check out the commercial exhibits" — 173 booths of them. Over 25,000 registered but "I believe it went up to around 28,000". A few comments from an article in CORA May 1982.

The WIA is in business for more members. Please help.

# LETTERS TO THE EDITOR



4 Ansett Crescent, Forest Hill 3131, Victoria.

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

5/17 Cooloolongatta Road, Camberwell, Vic. 3124.

The Editor,  
Dear Sir,

10 MHz — 1/1/82 TO 30/6/82

The Editor,  
Dear Sir,

After listening for 10 MHz amateur CW signals on every day of the first six months of the band being operational for "amateurs", I feel I am well qualified to pass judgement on the effectiveness, or otherwise, of our "new" band.

During the 181 days involved, I logged 476 different CW stations (40 countries — all continents) on the relevant band, all of which were made during the hours of 2000 GMT through to 1000 GMT.

Insofar as actual frequency used is concerned, I found that more than 90 per cent of loggings were made on either 10.105 or 10.110 MHz. (It was observed that phone transmissions, thankfully, were restricted to 10.100-10.150 MHz — these appeared to be far less in quantity than those using CW.)

On 1/1/82, nearly half of my loggings were "VK" sited — on 30/6/82 overseas loggings predominated. As a matter of fact, I found that "VK" amateurs were enthusiastic for January only, and from February on, their numbers slowly dropped and overseas stations increased, so much so that for the six months under review I logged more "G" and "DL" stations than "VKs". (During June I logged only one Aussie call sign that I hadn't heard previously on this band — surely "VK" can do better than that!)

In my humble opinion the band concerned is a worthwhile one (commercial QRM notwithstanding), and I raise my hat to those "VKs" who have stuck with it — to quote a few call signs I include VK2BQD, VK2YK, VK3AC, VK3JM, VK3MR, VK6RO and VK6WV, all of which are "on" 10 MHz most days.

Reception signal strength varies day to day (similar to 7 MHz), but I believe that, at peak periods, overseas signals are stronger on 10 MHz than on 7 MHz. (Incidentally, best times for overseas signals to be heard at my QTH have been between 2100 and 2300 GMT and 0500 and 0700 GMT.)

To summarise my experience logging CW signals on 10 MHz, I do believe, in all sincerity, that the band is for experienced and patient type amateurs only. This is because there are always at least 10 to 12 commercial RTT stations operating within the 50 kHz allowed to amateurs and some of these transmissions are very strong at most. If not all times, and create an unavoidable QRM problem for ALL amateurs to overcome. (Also present across the band, most of the time, are very strong/unmodulated carriers of unknown origin). If all goes well in the meantime, I hope to present a second report on "10 MHz for amateurs", covering the period 1/7/82 to 31/12/82.

Yours faithfully,

Eric W. Trebilcock L30042 (BCRS-195).

The Editor,

Dear Sir,

On receipt of the July issue of Amateur Radio Journal, George VK2GT showed me an item "A love letter to a 65-year-old husband just retired" and I was amazed to see that it was entered as a letter personally written by me to George. This is not correct, I cannot take credit for it, only for contributing it as an item to be published as an "extra" in the "Lyrebird".

It came to my hands about six years ago, about the time George was retiring — we considered it appropriate to retirement in many instances, but many discrepancies as regards George's retirement.

George was 62 years when retiring, we had been married 36 years, he has always been a non-smoker and we have never had, and still don't have, "time on our hands", etc.

I took some copies of the letter and a lot of our friends, relatives about to, or having retired, have received many a laugh about it and enjoyed reading same.

Since the publication I have received one beautifully written letter from an amateur friend, congratulating me, and have heard that it has been discussed in many other circles and naturally all have considered it as a personal letter, although some good friends who know us and our life-style will be completely puzzled by the contents, or at least some of them.

The original, which copy I gave, was written to "my Beloved Husband" and concluded "Your loving and devoted wife", and I certainly did not give the impression that it was a personal letter and didn't intend it as such.

Any credit due must be given to an anonymous writer, but after this, who knows, I may write a letter on "six years of retirement" which you may care to publish?

Kind regards,

Your sincerely,

Joan Bruce (XYL VK2GT).

The Editor,

Dear Sir,

"WORLD COMMUNICATIONS YEAR"

Here is a golden opportunity for all amateurs to become involved in activities and provide much needed publicity of our technical expertise, capabilities and remove the label of "a bunch of weirdos" that many members of the public feel when amateurs or hams are mentioned.

We have such a diverse range of activities that I'm sure would astound non-amateurs, such as DX-ing, computer logging, VHF repeaters, RTTY, satellite moonbounce, television, microwave and many more. I expect the museum of Applied Arts and Sciences will be involved, not forgetting due to a dedicated group of volunteers, they perform this much needed publicity all year round. So why don't the clubs get in on the act and set up stations in shopping Plazas, static displays in bank windows and release news value items such as distress and third party traffic to the news media.

Items such as the launching of our satellites (and failure during launch) should be of interest, but at least we can try and let people know what we are doing. Perhaps the Melbourne ATV Group could set up a receive station in a public place so shoppers, passersby can see what's happening on the ATV repeater, they have a tremendous achievement to be proud of, so why not tell everyone about it.

Personally, I will gladly volunteer for any activities and would hope many others would do the same, let's really make an effort for WCY.

R. N. SINCLAIR VK2DWF.

The Editor,

Dear Sir,

With reference to WIA NEWS on page 5 of June AR, item 4, concerning co-ordination between third party traffic networks and authorised amateur emergency networks (meaning WIGEN), I would like to point out the "starry-eyed" advocates of this proposal the following irrevocable facts:—

1. WIGEN is only one member of a national team who participate in radio communications in emergency situations.
2. The other team members are the State Emergency Services, the three Armed Services, State Police Forces, Coastguards, etc.
3. All these teams members speak the ONE LANGUAGE: in other words they use Standard International Radio-Telephone procedure, standard Service/SES message handling procedure and message forms.

The Editor,

Dear Sir,

I was horrified that you published a letter which contained blatant misinformation, calumny, and attacked the bona fides of several amateurs, including WIA office-bearers.

The letter from Ted Gabriel (RE: PHONE PATCHING, June AR) was not worthy of inclusion in the official journal of the Institute.

For 18 months I have been seeking the approval of phone patching by directly negotiating with Telecom.

Although the WIA Federal Convention has resolved to seek phone patching, at the time I became involved no one had approached Telecom on the matter.

Telecom had made an instruction prohibiting the Amateur Radio Service from using phone patching and Telecom management made this decision without consultation with the Institute and later claimed to be ignorant of the WIA's existence.

The prohibition had to be challenged or it could have become a permanent barrier to phone patching in Australia.

The fact that the Federal Convention endorsed phone patching disproves Mr. Gabriel's assertion that it doesn't have support among our ranks.

Phone patch will help promote our hobby in a positive way to the general public.

Amateurs also need to be prepared to play their part in times of natural disasters and phone patching is just another tool that can help us do that.

Mr. Gabriel's claim that there could be a breach of Third Party regulations to certain areas with the use of phone patch has been dismissed by the Department of Communications.

His fear that amateur operators would not have much control over the subject nature and language being transmitted is nonsense.

An amateur will have just as much control as if the third party was in the shack talking over the microphone — with the normal obligation of operators to brief those who will speak over his station on the type of language and subject matter permitted.

DOC would not take away a licence, as suggested by Mr. Gabriel, if the operator has taken necessary precautions.

The most scurrilous part of his letter refers to the "push" for phone patch which he says has been done by a few "lobbyists whose only concern is to line their pockets".

This accusation is completely without foundation as neither myself, the WIA Victorian Divisional Council, nor the WIA Federal Executive (all involved in the push) have been at the end of Mr. Gabriel's imaginary financial reward.

Anxious to get to the bottom of his innuendoes I dialled direct assistance, and ironically Mr. Gabriel appears not to have a telephone — a prerequisite for phone patching.

Regards,

Jim Linton VK3VKC/VK3PC.

12 Albert Street, Oak Park 3046.

The Editor,

Dear Sir,

## EXPERIMENTAL TRANSMISSIONS ON LOW FREQUENCY

A small group in Victoria would be interested in hearing from any amateur in Australia or New Zealand with receiving capabilities on frequencies below 200 kHz who would be willing to listen for experimental CW transmissions and send in reports. Anyone who is interested in participating in this interesting experiment please contact J. A. Adcock VK3ACA, QTHR. Phone (03) 308 2069.

J. A. Adcock.

4. The majority of persons originating and handling emergency traffic will, in most cases, be SES personnel and while these people are not always radio operators, they are nevertheless quite competent at handling messages in the system in which they have been trained.

The same applies to Service personnel.

Therefore if it is desired to bring in third party traffic nets to join this highly skilled team they must also be trained in the same system and be under the control of WICEN.

In their present form and method of operation they would be absolutely useless to the emergency services since they lack any plan of operation or training.

WICEN maintains a high standard and reputation worthy of the Amateur Radio Service.

It has often been praised for its competent and professional handling of emergency communications. Let us keep it that way!

Yours sincerely,

Ted Gabriel VK4YG,

WICEN Co-ordinator, Region 1, Queensland.  
Box 59, Atherton, Qld. 4883

The Editor,

Dear Sir,  
I deem it quite an honour to belong to the WIA, having been a member since 1929.

I have watched with great interest how the AR has developed over the years, the last issue, Vol. 50, No. 7, of July is so outstanding that I feel compelled to write to you and congratulate you.

The contents are so well balanced that I think praise should go to you, excellent technical articles, a brand of humour that is both witty and clean, such as the one on page 4 by the XYL of VK2GT, what a lucky fellow is her husband, the little snippets here and there, which show both wit and cleverness, and articles of interest to all and sundry.

All in all, it is a most outstanding magazine and gives me continued hope in the amateur ranks.

I take off my cap to you, and if possible I would like you to let all and sundry know what an old-time thinks.

Sincerely yours,

Harry C. Kinzbrunner VK4HK,

274 Esplanade, Pialba, Qld. 4655

The Editor,

Dear Sir,

The item by Marshall Emm VK2QXP (AR July 1982) on Poetic Abbreviations was read with a smile and a chuckle. I wonder how many amateurs could understand the "cut up" rhyme by Spru Spruhan. It is really a classic and many an ex-Telegraph or ex-Postal Clerk would remember his instructor praising the virtues of the old-timers who could really send Morse and abusing all who dared to send an incorrect letter or even clip the dashes.

In my days (1950s) 22½ WPM was the minimum requirement to qualify as a Postal Clerk but even at that speed it took some more years before we became proficient enough to tackle the Telegs in the CTO. The Telegraphists were the "elite" of the Morse in the old PMG days and the Postal Clerks, who worked at the end of the line in the Post Offices were only "part-time" Morse operators. BUT — there were the PCs who could be serving a customer at the counter, be called on the line by CTO, give GA, go back to serving on the counter and THEN write down three telegrams after the line was silent.

I am very pleased to hear that, although TRESS has taken over as a means of communication by Telecom, good CW is still practised by many an amateur operator. It is also pleasing to hear that the younger generation are keen to continue the art as they progress from 5 to 10 to 20 WPM. The keyboard and VDU are creeping in and if we are not careful, the "art" will be taken over by these "Plastic" monsters. Although pleasing to the ear, their beauty is skin deep and without character.

Yours faithfully,

R. J. Wheller VK4VHL.

EDITOR'S NOTE:

The writer has also forwarded an item called "Soliloquy on Morse". This will be published when space permits.

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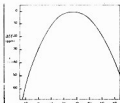
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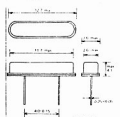
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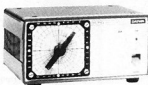
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## SILENT KEYS

It is with deep regret that we record the passing of—

Mr. L. H. BROWN	VK3BUA
Mr. J. S. DAHL	VK4VT
LT.-COL. A. V. GILES, MBE, DCM, ED	VK2ZGA
Mr. H. R. GRAY	VK2AFA
Mr. R. L. KEOGH	VK4KU
Mr. G. L. LEE	VK2AGD
Mr. L. M. STONE	VK2LW
Mr. P. R. WRIGHT	VK2VOZ

## OBITUARIES

ARTHUR VINCENT GILES, Lieut./Colonel, M.B.E., D.C.M., E.D. VK2ZGA

Arthur passed away at his home on 2nd July, 1982. He won the D.C.M. in Palestine in 1941 and was awarded the M.B.E. in 1970 for his work in both Service and Charitable Organisations. He was a Life Member and Past President of the R.S.L.A. Engineers Sub-branch and a member of the Management Committee of the Northcott Neurological Diagnostic Centre and President of the Friends of Northcott Committee also.

His Service life began in 1934 in the Militia, then in the AIF from 1940 to 1948. In 1950 he joined the CMF and in 1951 the Regular Army, serving until retirement in 1972. During this period he served in Syria, New Guinea, Japan, Papua New Guinea and the United Kingdom, where he held an amateur radio certificate.

Arthur also found time to hold office in many other organisations, including President and Life Member of 7th Australian Division AIF Association, President and Life Member 7th Australian Division Engineers Association, President of 7th Australian Division Memorial School, Situm Building Fund, Papua New Guinea, and a member of United Services Institute, Institute of Royal Engineers United Kingdom, WIA, WICEN network and the Volunteer Rescue Association.

I first met Arthur in 1935, at which time, as well as his involvement with the Army, he was also interested in radio. Events prevented him obtaining his amateur licence until 1964.

Arthur is sadly missed by his many friends and comrades.

Ross Usher VK2ZRU.

PHILLIP WRIGHT VK2VOZ  
It is with deep regret we mourn the passing of Phillip VK2VOZ on 18/5/82, aged 25.

Whilst licensed only a few short years, Phillip made many amateur friends and especially liked chatting on CW. And it saddens us to see someone as young as Phillip taken from our ranks by such a serious illness.

His presence will be missed both on and off the air by all who knew him.

Our deepest sympathy is extended to his wife Mary and his daughter Vanessa.  
Geoff Vaughan VK2FY.

LEW STONE VK2LW  
Lew was a stalwart on 20 metres for a great number of years, a kindly man, always patient and ready to help the newcomer and the old-timer alike. He was an interesting man to have a QSO with, and was genuinely concerned about the other fellow and his problems. He always liked working the "G" stations, and particularly looked out for them, and we in our turn enjoyed working him.

If you could not hear Lew, the chances were that you would not hear any other VK2 either. He will be sadly missed by us all over here. Twenty metres will not be the same without him.

God bless you, Lew, you gave us a lot of pleasure for a long time. We won't forget you in a hurry.  
Alec C. Thompson G4FJ, also VK3BQW.

GEORGE L. LEE VK2AGD  
It is with deep regret that I record that George Lee VK2AGD, of Kahlbath, NSW, passed away suddenly on June 4th, 1982, at the age of 74. George was a keen, active radio enthusiast from a very early age and became a licensed operator in the early 1930s. In those days and immediately after World War II he spent a large portion of his "on air" time on the 10 metre band.

In the last few years, he became even more experimental, he could be said, in home-brewing everything he used in the shack, so that invariably he had a piece of gear of some kind under construction at all times.

His passing came as a great shock to all who knew him.

Our deepest sympathy is extended to his wife, Eileen, and his family.

Allan Stephenson VK2PT.

HARRY GRAY VK2AFA  
A true friend is gone and amateur radio is the loser for the passing of Harry Gray VK2AFA on 7th July, 1982. Harry was a foundation member of Westlakes Amateur Radio Club and he worked actively with that organisation encouraging and helping members, especially those taking their first steps along the road to the mastery of CW. He was born at Torrieburn, Scotland, in 1886 and was a miner until he joined the services and served in Europe during the first war. He migrated to Australia in 1922 and settled in Terahba, which was to be his home until his death.

Harry's radio activities resulted in him gaining a licence in December 1936, and his first and most of his QSOs were on CW. There is no doubt that his expertise in the Code led him to volunteer for service in signals during World War II and also for his selection to work with a government team in New Guinea after the war establishing communications networks.

Harry was a keen advocate of home-brew equipment and those who knew him well will recall his typical shack, that famous flip over ZL special supported on bush poles and the mass of awards, including the OXCC on his shack wall. He was well known to DX and had regular daily skeds on CW until the onset of his disabling illness two and a half years ago. It is unusual, but fitting, that the officiating minister should spend time during a funeral oration to talk about amateur radio and the part it played in Harry's life, but the many old-timers present at the service were greatly comforted by these words.

His amateur radio friends, both young and old, will long remember his quiet example and strong endeavour to uphold the ideals of our hobby.

Rest in peace silent key VK2AFA.

VK2AKX.



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**Antenna:** Discone antenna, 225-400 MHz, type AT-177/GR (USA), one radial and top disc or whole antenna, 3822 valves and K901 AC delay relay (local base and glass envelope), Collins R390, 391 or 390A top and bottom and R390 or 391 RF/IF module cover plates, VK3B/F, QTHR. Ph. (03) 553 1638.

**Transceiver:** 12V aircraft txcvr., 118-125 MHz, AM, VK3AYJ, QTHR. Ph. (03) 725 8770.

**Valves:** VL 1060 valves, will collect. VK3DBB, QTHR. Ph. (059) 41 1351 AH.

**VFO (Ext)** for Collins KWM2 - Loan for Heard Island DXpedition Dec. 82-March 83. Dave VK3DHF, Ph. (03) 669 4392 Bus., (03) 729 9647 AH.

**Whips:** Set of Yaesu guttermouth whips and paddle key. VK3DKN, Kingsley. Ph. (03) 555 5221.

#### WANTED - QLD.

**Collins power supply,** type 516F-2, at your price. VK4FF, QTHR.

**Hustler Mobile Antenna,** VK4NPX, QTHR. Ph. (075) 57 1452.

#### WANTED - TAS.

**Rotary Inductor,** any type or cond., pref. with min. Inductance of 25 uH. N. Trapp VK7ZAE, PO Box 788, Launceston, Tas. 7250.

#### FOR SALE - ACT

**Icom 245 FM 144-148 MHz** plus SSB adaptor, e.c. \$382. VK1ZAA, Ph. (062) 58 4356 AH.

#### FOR SALE - NSW

**AMATEUR RADIO,** complete set of 12 issues of the 1981 magazines, \$10, including postage. Ph. (047) 87 7003, Blackheath, NSW.

**Antenna:** TH3 3 el. triband beam, complete with balun, \$125, buyer collect. K. Pryce VK2BNB, 3 Greenway Parade, Revesby, NSW. Ph. (02) 773 3622.

**Computing:** 2850 microcomputer owners: Sell 78uP9 and 78uP10 PC boards with 14 Ram and 15 other chips, capacitors and IC sockets, plus photostats of the orig. EA magazine articles, to expand your 2850 to 8K or even 11K of Ram; also micro basic cassette plus listing, the lot \$50, or make an offer. VK2AZT, Ph. (069) 42 1392.

**CW Teleceiver CWR-882A,** displays on home TV, printer, etc., for tx/rx or practice, incl. keyer, circuit, instr., p.c., unused, 35 ICs, \$370, ONO. VK2PT, QTHR. Ph. (049) 43 1368.

**Deceased Estate (VK2VOZ):** Kenwood TS550S txcvr., with SP520 speaker, immat. cond., \$500; Shure 44S SSB mic, new cond., \$65; Drake TV 3300 LP TV filter, \$33; Oskenblock SWR 200, \$55. Geoff VK2FY, QTHR. Ph. (02) 602 9043.

**Deceased Estate:** 432 MHz microwave modules complete, 432 MHz microwave modules tripler, 500 MHz microwave modules preselector, VK2ZRU, Ph. (02) 451 6992.

**Eddystone VHF R,** 19-165 MHz, working but fault in audio, suit enthusiast, buyer collect, with manual, \$75; set of three Harmsworth's wireless encyclopaedias, circa 1922/3, collector's item, excel. cond., offers around \$100. N. Burton, 130 The River Road, Revesby, NSW 2212. Ph. (02) 774 1827.

**Generator:** Honda E250DU 240V AC 50 Hz at 2,500 watts, also gives 12 and 24V DC, excel. as new cond., with owner's manual and special power harness, ideal for farm, office, home, boat, field day, DXpedition, \$795. Yaesu FT24 2m VHF txcvr., with matching Yaesu FP-2 power supply, Cushcraft 5/8 wave ringo vertical with Belden cable, manuals, etc., \$175. Ph. (02) 36 2981.

**Junk Collectors:** 5 in qty. carphones, marine two-way (suit 800), cassette deck, any offers for the lot! Suit Novice or beginner, VK2ZWA, QTHR. Ph. (02) 498 7956.

**Kenwood TS180S,** with all additional options, incl. 2 SSB filters, CW filter, memory and SP-180, in e.c. with service manual, \$800; quartz 16 2m FM, in e.c., 9 repeater channels and 4 simplex installed, with mounting bracket, \$160. VK2BHF, QTHR. Ph. (02) 981 4762.

**Kenwood TS520** with DG5 dig. freq. counter and SP520 external speaker, all perfect working cond., \$500, ONO. VK2AXC, Ph. (02) 638 4979.

**RTTY Equipment:** Models 28TD, \$25; 14TD, \$25; 15SR, \$35 [spare parts, service manual, paper and ribbons incl.]; Novice txr., Viking \$520, 28-195-28.635 MHz, with service manual, \$150, ONO; GDO, \$40; 2m converter, \$10; video modulator, AWA low-band carphone (MRT 251A), \$10. Gordon VK2ARY, QTHR. Ph. (02) 73 2662 AH.

**Shack Clear-Out:** Moving house, garage sale, 25 years of amateur hoarding, includes BC348, MN26C, ARC27, IC202, Marconi Mk. IV IO camera chains, test equipment, components, magazines (AR, QST, etc.), handbooks, everything to go, reasonable offers, list SAE. VK2ZAH, QTHR. Ph. (02) 477 4421.

**Trio OC-1303G** 75 mm monitor scope, 1.8-54 MHz, 2-500W, 2 tone oscillator, DC-5 MHz oscilloscope, sensitivity higher than 10 mV/div., as new with manual, \$150, ONO. VK2AEU/NTA, QTHR. Ph. (049) 59 3413.

**WIA Correspondence Course** for the AOCIP, transfer of student has been OK'd by the course supervisor, books are in excellent cond., \$35. For further information please ring (02) 787 1382 AH or (02) 635 1853 Bus., ask for John.

#### FOR SALE - VIC.

**Antenna:** Discone antenna, GDx-1, 80-480 MHz, never used but element clips galvanised, \$50. VK3BFB, QTHR. Ph. (03) 583 1638.

**Drake RAC-24X/M54** spkr./PSU, transceiver or separate operation, 160 to 10M, RAC with NB and xtals for additional 5 SW bands, g.c., all manuals, \$650, ONO. VK3ACS, QTHR. Ph. (03) 592 5960.

**Forest Phone F31,** fitted with 80m xtals, can be converted to 160m, comp. with service manual, \$40. VK3KVT, Ph. (03) 754 4860.

**FT1012D** WARC bands, desk mic., fan, \$600; Palomar TX200 broad band HF linear, \$150; Dahua AF306 audio active filter, \$35. VK3DOM, Ph. (059) 62 5236 AH.

**IC 215 FM rig,** hand-held, 4-W3, Ch. 40-50, rptr. 2, 3, 8, also nicks and changes; AWA 2M10 FM 10W carphone, Ch. 40-50, rptr. 2 and 8 and 8 reverse, both mint cond., circuits, cradle, etc., best offer. Keith VK3AFI, QTHR. Ph. (052) 26 3311 Bus., (052) 21 3658 AH.

**Icom IC225,** brand new, still in box, \$230. VK30FM, Ph. (03) 596 3968.

**Icom 701,** highly tuned, mod. for extra final-cooling, offer wks on Tx/Rx or Tx only, compl. w/preamp desk mic. and RM3 memory and remote contr. unit that has been mod'd to scan and stop on spk, v.g.c. \$825 (will not sep.); Icom act. filter, and spkr. unit, as new, \$75; Hustler mobile whips, 10-40-80m set, \$55; Siemens 100 teleprinter, compl. w/ld in demod/mod. ftrs., switching and loop PSU, \$325; asstd. scope spring books, \$5 ea.; 3 stage 60 ft. Hills tower, \$175. VK3DKN Kingsley. Ph. (03) 555 5221.

**Kenwood TS520S,** new final, \$490; Yaesu FT227RB, \$250, both e.c., with handbooks and cartons, AF VK3DFW, QTHR. Ph. (03) 873 9939 Bus., (03) 877 2963 AH.

**QTH, incl. DXers,** large block with 3 broom weather-board house, at foot of Dandenongs, Tecoma, close to shops, station, schools. Geoff VK3KNX, Ph. (03) 729 1693 AH.

**Tower:** Southern Cross KVC tower (free standing), consisting of a 90 ft. tower without the top 25 ft., actual height 65 ft., all steel work galvanised and in good cond., will hold about 20 sq. ft. dismantled, in max. 10 ft. lengths, ready to take away, \$590. VK3KAQ, QTHR. Ph. (03) 755 1467 AH.

#### FOR SALE - QLD.

**Kenwood TR2400,** c.w. external mic. and earphone AC charger, perfect cond., also quick charger, supply operated from car 12V supply, plus manuals, \$380. VK4AKU, QTHR. Ph. (071) 45 1714.

**Kenwood TR8400 UHF FM Txcvr.,** 2 months old, \$340, also Kenwood TR7730 2m FM Txcvr., 30W output, 10 months old, \$300; both Txcvrs in e.c. with instruction manual and cartons. VK4AQJ, Ph. (07) 59 8268 AH, (07) 399 0723 Bus.

#### FOR SALE - S.A.

**Kenwood R-1000 Rx,** Mizuho ant. tuner KK-3, urgent sale, \$300. R. A. Duncan, 145A Main Street, Hahndorf 5245.

**Kenwood TS120V,** SP 120, SP 120, v.g.c., \$500. Tom VK5ATK, Ph. (08) 250 0168.

**Signal Generator:** HP 616B sig. gen., 1.75E Hz-4.26 Hz, \$500, ONO; Marconi TP995 sig. gen., w. manual, \$400, ONO; Marconi FT1446 sig. gen., w. manual, \$150, ONO; Dalm computer board, \$97. Ph. (08) 262 6555 Bus., (085) 22 1919 AH.

**Ten-Tec Century 21 Txcvr.,** 50W CW, full break-in, as new, in orig. packing, \$395. VK5DL, Ph. (08) 391 1457.

#### FOR SALE - WA

**Windmill Tower,** 30 ft., \$200, ONO. VK6LT, QTHR. Ph. (09) 457 1080.

#### FOR SALE - TAS.

**FT181E DC to DC processor,** 260W input, in mint cond., \$450; FT101E, same above, with FTV560S transverter, in mint cond., \$550; FT901DM with full house, mint cond., \$850; microphones - STC, bread cable, \$15 ea. VK7UW, Ph. (052) 64 1320.

**Yaesu FT1012D** Mk. III, latest, incl. FM board, WARC, mic., service manuals, new, \$700; Yaesu FV901MD, 40 ch. scan, ext. VFO, suit FT1012D, FT901D, FT902D, new, \$200; Kenwood ext. spkr., SP180, new, \$40; ext. VFO 180, new, \$90, suit TS180S. VK7AN, Ph. (003) 31 7914.



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